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THE ORGANIZATION OF THE UNIVERSITY MEDICAL SCHOOL*

ARTHUR DEAN BEVAN, M.D.
CHICAGO

For twenty-two years I have been chairman of the Council on Medical Education of the American Medical Association. During this period I have had the opportunity of studying the organization of our American medical schools. During this period most of our medical schools which survived the revolution which the American Medical Association brought about have become the medical departments of universities, and a number of universities have created new medical departments.

It is unnecessary for me here to review the great changes that have taken place. These changes have amounted to a complete reorganization. I desire from my study of this subject to present my conception of how a university should organize and conduct a school of medicine. The task of developing a modern medical school has become one of the greatest, one of the most important functions of a university. It is also one of the most difficult and costly pieces of work that a university can undertake. It is a difficult task, because until recently most of our universities have had little or no experience in conducting medical schools.

It is a difficult task, and a new task, for the university because the development of a medical school cannot be made along the same lines as other departments. Other departments of the university are for the most part university affairs which can be developed within the university. A medical school must be developed on broader lines. The medical school, through its hospitals and dispensaries, its laboratories, its maternities, its infant welfare work and its public health work, is not simply a department of the university interested in teaching and research; it is more—it is one of the most important of the agencies which can secure for the people the great benefits of modern curative and preventive medicine. A medical school developed on these broad lines can be of the greatest service to both the community and the university. It can do more to make the university an essential integral part of the community than can any other department.

Let us from our experience of the last twenty-two years of study of this subject, as medical educators, formulate a plan for the development of a university medical school on broad and sound lines.

The first question to be answered is: Should the particular university under discussion develop a medical school at all? This may be frankly answered in the negative if there are already a sufficient number of well organized medical schools in that particular territory, or if the university is located in a small center of population where it would be difficult to develop a well balanced medical department.

THE PLANT, THE LOCATION AND THE BUILDINGS

Granted that conditions warrant the development of a medical school, the first essential is that the medical school should be located in close contact with the university. This does not mean that it is essential to locate the medical school on the college campus. It is desirable, if possible, to have the medical school in close contact with the other scientific departments of the university, especially those of physics, chemistry and biology.

There is, however, another factor which must be considered: it is essential to have the medical department in contact with a great general hospital, with dispensaries and with special hospitals, such as maternity, children's, orthopedic and contagious.

The ideal situation is one in which the medical school can be developed in contact both with the great hospitals of the community and with the scientific departments of the university. Local conditions may prevent this, in which case the university must choose between the two locations: contact with the scientific departments of the university or contact with a group of hospitals. In making this decision, it must be remembered that hospitals and dispensaries are absolutely essential.

Whichever location is chosen, the first essential is to secure a large block of ground, from ten to twenty acres for present needs and future development, large enough to accommodate not only the medical school building, but a large general hospital and dispensary and a number of special hospitals. The university should be in a position where it can furnish the ground in close contact with its medical school buildings, on which special hospitals can be built.

In organizing the medical school, the community should be taken into the scheme as an active partner. In using the word "community" here I use it in a sense broad enough to cover a city, a county and a state. The community must be made to realize that the great medical organization which is being created is both a university and a community affair.

Medical education has become a very costly thing. No university should undertake to develop a medical school without first looking carefully into the cost and the upkeep. The cost of the medical school must be divided between the two partners, the university and the community. The cost of the medical school buildings, the laboratories, the facilities for research and the

* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 15, 1926.

salaries of the teachers must be borne by the university. On the other hand, the cost of building and maintaining hospitals, dispensaries and clinical laboratories must be borne by the community.

I desire to emphasize this statement and, if possible, to make it perfectly clear. The cost of building and maintaining hospitals and dispensaries is not a proper charge to be borne by the medical school. There are medical departments which have made this mistake and spend between two thousand and three thousand dollars a year per medical student, a charge which is entirely out of line with the other departments in the university.

Looked at from the best interests of the two partners, the community and the university, it is a mistake for the university to build and maintain hospitals and dispensaries for the purpose of teaching medicine; and it is a serious mistake for the community to build and maintain hospitals and dispensaries without using them for the purpose of medical teaching and medical research, for in no other way can they secure the best medical and surgical skill and care for their patients.

We must convince the public and the municipal, county and state officials, and university presidents and trustees, and trustees of the hospitals of the fact that the people of this country can secure for themselves and their children better medical service, better medical care and better facilities for research for the purpose of solving the many unsolved problems in medicine, by making a close cooperation between our great hospitals and dispensaries and the medical departments of our universities. It would have been difficult to do this twenty-five years ago. It will not be difficult to do this today. All over the country this sort of cooperation is being secured.

I believe that by a concerted effort by the universities, by the American Medical Association, by state, county and municipal officials and influential members of our community, whose interest in this matter we can secure, we can succeed in bringing about this scheme of cooperation within the next ten years.

THE FACULTY

The members of the faculty of a medical school should be medical men, graduates in medicine who should keep in touch with medicine even though they are teaching in a laboratory branch, like anatomy or physiology. A man without such training is seriously handicapped in his work and may be an actual menace. It is not sufficient to study and teach anatomy and physiology in a medical school for their own sake alone; they must be studied and taught and research in them carried on from the standpoint of their relation to, and the needs of the science of medicine and of the medical student.

The members of the faculty in the laboratory branches should be full-time university instructors and should be well paid. It is difficult to secure and retain strong men in these positions without adequate salary and proper provision for pensions. The members of the faculty teaching clinical medicine present a different and a difficult problem. These men in a well organized medical school will occupy positions as the attending physicians and surgeons and specialists in hospitals which are serving the community and all classes of the community. These teachers of clinical subjects must be not only university teachers and trained research men but also expert clinicians. They should be the recognized authorities in their special fields and serve as such both the medical profession and the public.

If the medical school is organized in the proper way, with the cooperation of the university and the community, the clinical teachers must retain their normal relationship to the community and the medical profession and must be both teachers of medicine and practitioners of medicine.

In the organization of the strong universities in central Europe, the clinical teachers occupy the dual position of university teacher and great consultant. They are first and last, and all the time, devoting their energies to clinical teaching and clinical research, and while they are doing this, they serve as great consultants in special fields and serve all classes of the community. They very properly receive, from those who can pay, remuneration for their services. The patient who occupies a private room may be quite as important a factor in a piece of clinical research and in clinical teaching as the patient in a ward bed. As a matter of fact, private-room patients furnish more unusual and difficult problems than do ward patients. They often present obscure cases and are sent to the consultant from great distances.

I want to repeat here what I have said before, that the best teaching hospital is a great general hospital which cares for all classes—the poor, the charity cases, those of quite moderate means who pay part of the cost of their care, and the well-to-do who pay the cost and more than the cost of their care. It seems difficult for some minds to comprehend the fact that a great clinical teacher can spend his life in the wards and private rooms and laboratories of a hospital and receive compensation from some of his patients, possibly a third of them, and yet be the highest type of university professor, devoting his life to clinical teaching and clinical research, just as completely as does the physiologist in his class room and his laboratory.

It is very desirable to have consulting rooms at the teaching hospital, making it possible for the clinical teachers to do practically all their work in one institution. The clinical faculty should receive fair compensation for their services, certainly not more, possibly not as much as the teachers in the laboratory branches. A large part of the budget of a clinical department should be devoted to the younger men who are devoting their time to teaching and research work and acting as assistants in clinical work to the professors and associate professors.

The heads of the clinical departments, especially those of medicine and surgery, should be very broadly trained men, let us say of the Osler or Billroth type, and not men limited to some narrow field of medicine. These broadly trained men are of especial value in teaching undergraduate students.

THE STUDENTS

The preliminary education required has been fairly generally agreed to by medical schools of the university type for many years, at least since the time of Billroth and his small monograph on medical education, "Lehren und Lernen," which was published in 1875.

This requirement has been a secondary school education plus, at least, a year's training in physics, chemistry and biology. In this country the requirement which has been almost unanimously agreed on is that of the high school, plus a premedical course of two years in the university, largely in physics, chemistry and biology. With this minimum, plus four years in the medical school and the year or more as an intern in the hospital, we have developed a medical course which graduates

the student into medicine at about 28 years of age on the average, as the Council on Medical Education first pointed out some years ago.

It is true that the normal boy, without any interruptions of any kind, can enter school at 6 years, remain eight years in the primary school, remain in high school four years and enter college at 18, finish his two years of premedical work at 20, enter the medical school and finish his four-year course and hospital year at 25. This would be a very desirable age at which to enter medical practice. As a matter of fact, however, our present scheme, because of interruptions and because many students take the full four-year college course, results in finishing the intern year at an average of 28 plus. This is a serious matter and should be corrected by the general adoption of the six-year combined course and by cutting out two years in the primary and secondary school work, so that we could graduate our medical students at 25 years of age. The Council is keenly alive to the importance of this matter. The movement is well under way, and with the proper cooperation between the primary and secondary schools, and the university and the medical school, we should be able to reduce within eight or ten years the average age of completing the medical training to between 25 and 26 years.

This reduction in age, however, should not be brought about by lowering requirements in any way. Plans suggested to reduce the preliminary requirements and the length of the medical course cannot be seriously considered, and will not be considered by the universities, the medical schools or the state licensing boards, or state legislatures.

Several years ago, when such a plan was proposed in Kentucky by one of the most influential medical men in the state, the legislative committee to which it was referred rejected it almost unanimously, after hearing evidence from both sides.

The question of the number of students in a medical school is an important one. It is, of course, a mistake to maintain a medical department for a very small number of students, say twenty-five in each class. I doubt very much whether it is wise, whether it is worth while, to conduct a medical school with less than fifty students in each class. On the other hand, it is unfortunate to have more students than can be properly taught. It is difficult to place a definite limit to the number of students. One might, however, place it at from 125 to 150 in each class.

It has not been demonstrated that it is desirable to have a small select body of students, or that such students develop into especially competent men. The conception that a medical faculty can select at the beginning of their course the men who will become great clinicians, great teachers and great investigators is, of course, a childish dream.

The larger medical school, with 500 medical students, has many advantages. Good-sized classes furnish inspiration and enthusiasm for both instructors and students. The students in a large medical school are not so apt to be overcome by the odor of sanctity and a sense of their own importance as are the students in a small select school; and finally, it is easier, other things being equal, to secure and retain outstanding men for the faculty in the larger than in the smaller school. I feel strongly that a medical school in a state is a very important stimulus for better medical work in that state, from every point of view; that it means better medical practice, better public health work and an improvement in the standards of medical education and medical practice, generally. From that point of view, I believe that we should recognize the fact that the development of a medical school should be encouraged in every state which does not possess one, where the conditions warrant; that this development should be made, and that we should recognize and assist in the development of such a school even though it must begin in the small way, with limited facilities and with limited funds. In this rapidly growing country, most of these smaller schools will in time develop into strong institutions and I believe they should be given every encouragement and support.

THE UNDERGRADUATE MEDICAL CURRICULUM

It is not necessary to consider the undergraduate medical curriculum in detail. There are, however, some fundamental principles which I desire to emphasize:

The purpose of the undergraduate curriculum is to train men for the practice of medicine, and the course must be constructed, and the work carried on, with that end in view. It is not for the purpose of training men in anatomy or physiology or some clinical specialty. What the medical student needs is a working knowledge of those portions of anatomy, physiology and pathology which are essential to him in the practice of medicine, and these subjects should be taught him with that conception constantly in mind. With the limited time that can be devoted to these subjects it is impossible to teach him more than the simple working knowledge of the clinical aspects of these subjects. A complete training in these sciences must be individual and special and must be secured in graduate study.

It must be made plain to the medical student at the very beginning of his course that he is studying medicine, and for this purpose he should very early be brought in contact with patients, with the clinic. The French medical course, where the student devotes his mornings to the hospital from the day he enters the medical school, is probably not the best solution.

The American medical student could probably obtain the desired medical and clinical point of view by attending from the beginning of his course two hours of clinical work in general medicine and two hours of general surgery each week. These clinics should be given, not by a junior assistant, but by either the head of the clinical department or some broadly trained associate.

In each clinical department, the backbone of the course should be the teaching clinic of the chief. In each clinical department it will be necessary to teach the anatomy, physiology, pathology and pharmacology involved in each clinical case as well as the sciences of diagnosis and therapy. The dispensary should be used as a most important factor in clinical teaching. In their senior year, the students should be a large part of their time in the hospital in direct contact with patients, acting as externs or clinical clerks.

THE HOSPITAL INTERN YEAR

Nowhere in the world has the hospital intern year been more generally adopted or been developed into such a valuable part of the medical course as in America. Much more than 90 per cent of American medical students serve a year or more as interns in the hospital before beginning practice.

Many medical schools and many state boards make it a requirement for examination for licensure. This requirement should be made by all state boards and all

medical schools in the interest of the public. No one should be permitted to practice medicine who has not had the practical experience of serving for at least a year as a hospital intern.

It has now been shown by the experience of a number of years that this hospital year requirement is perfectly practical and of great value. It can best be administered by a special committee of the faculty, known as the fifth-year committee. Medical schools and state licensing boards who desire to adopt this requirement can obtain the details of the plan either from the Council or from Dr. James B. Herrick, the chairman of the fifth-year committee of Rush Medical College.

The question whether we should require a rotating service or a single service for the fifth year is one still under discussion. I myself do not think we should be too rigid in this matter. Many of our best teaching hospitals, such as Peter Bent Brigham, Johns Hopkins, Lakeside in Cleveland, Barnes in St. Louis and the Presbyterian in Chicago, have the single service system. The students themselves prefer the rotating service. I believe that the medical schools and state boards should accept both types of services, provided they are of the required standard and given in acceptable hospitals.

THE TRAINING OF THE SPECIALIST (GRADUATE AND POSTGRADUATE MEDICAL COURSES)

The subject of the training of specialists has been carefully considered by the Council and discussed fully in annual conferences and a general agreement has been reached: such training requires three years of graduate work best carried on as assistant in a well organized clinic. The student serves as an apprentice under a master workman. The graduate student will be fortunate if he does his work in a clinic of a large general hospital which takes care not only of charity cases but also of part-pay and full-pay cases, so that he is brought in contact with all classes.

A medical school which enters this field of postgraduate work on a large scale should build up in connection with its teaching hospital a diagnostic clinic, such as the Mayo Clinic, as such a plant is of the greatest value in postgraduate work. It is also desirable to secure endowments for fellowships which will enable worthy students of small means to pursue their postgraduate studies. It is very important to develop review courses for practitioners as a part of postgraduate instruction.

TABLE 1.—*Cost of a Medical School Plant*

Six laboratory buildings (anatomy, physiology, pathology, bacteriology, pharmacology and biochemistry)	$1,000,000	to $2,000,000
The medical school building for the clinical branches, clinical and research laboratories, administration, medical library, etc.	500,000	1,000,000
Total	$1,500,000	$3,000,000

COST OF THE PLANT AND COST OF CONDUCTING A SCHOOL OF MEDICINE

Leaving out of consideration the cost of the land required—from 10 to 20 acres, which may in a large city cost a large sum of money—the cost of a perfectly developed medical school plant might be approximated as in table 1.

The cost of building and conducting the teaching hospital and dispensary should not be a charge on the medical school, but a charge on the community. We might, however, estimate this as a matter of interest and also as an argument against the university assuming the burden. A 500-bed hospital, such as the Presbyterian in Chicago, costs more than $3,000,000, and has also an endowment of more than $3,000,000. The Cook County Hospital, in which my own department has eight very competent attending men teaching surgery, has 2,500 beds, and will shortly have 3,500 beds. The cost of the completed hospital will be more than $10,000,000; maintenance, more than $2,000,000 a year at 5 per cent, equivalent to an endowment of $40,000,000.

These great hospitals are of enormous value in teaching medicine. One of the men in my department has charge in the Cook County Hospital of a fracture ward with from ninety to a hundred cases. A teaching material in this important field of work which no university-owned hospital could possibly duplicate and the postmortem and pathologic material in a hospital of from 2,500 to 3,500 patients is invaluable.

Without charging any hospital or dispensary cost, the annual cost of conducting a well developed medical school with 500 students might be estimated as in table 2.

TABLE 2.—*Annual Cost of Conducting a Medical School*

The total budget of the six laboratory branches	$150,000	to $250,000
The clinical departments, not, however on full time	100,000	150,000
The executive office	15,000	30,000
Heating, lighting, janitor service, upkeep, etc.	50,000	70,000
Total	$315,000	$500,000
From this deduct the income from students (500 at $300 a year)	$150,000	$150,000
Total	$165,000	$350,000

If we take the cost of the plant and capitalize the endowment required at 5 per cent, it will require the amount given in table 3.

TABLE 3.—*Capitalization of Endowment*

Cost of buildings	$1,500,000	to $ 3,000,000
Endowment required to raise $165,000 a year	3,300,000	
Endowment required to raise $350,000 a year		7,000,000
Total	$4,800,000	$10,000,000

This represents fairly well the cost of building and maintaining a first-class university medical school; and this is without charging to the medical school the cost of building and maintaining hospitals and dispensaries, or conducting the clinical departments on the so-called full-time clinical basis.

If the grave error of building and maintaining a 500-bed full charity hospital and outpatient department is made, and the clinical faculty placed on a full-time basis, it would add to the foregoing estimate the amount given in table 4.

TABLE 4.—*Extra Cost of Charity Hospital*

Building of a 500-bed hospital and dispensary	$ 3,000,000
Cost of maintenance as a charity hospital, $500,000 per year, at 5 per cent, an endowment of	10,000,000
Placing clinical faculty on full-time basis would add probably $150,000 a year to cost of conducting the school, at 5 per cent, an endowment of	3,000,000
Total of	$16,000,000*

* A prohibitive sum.

On a sound scheme of organization, a first-class university medical school, cooperating with the community, can be built and conducted at a total cost, capitalizing the endowment necessary to pay running expenses, of from $5,000,000 to $10,000,000.

On the badly conceived scheme of organization in which the university builds and maintains hospitals and dispensaries, and adopts the full-time clinical scheme, from $16,000,000 to $25,000,000 would be required, a cost that would never be seriously considered by a board of university trustees composed of men of good judgment and good business sense.

There is another fact that must be considered: The evidence at hand seems to show not only that the medical schools the world over which have been developed on the sound scheme of taking the community in as a partner and using the hospitals and dispensaries, supported by the community, as teaching hospitals cost much less, but that the strongest and best medical schools have been developed on this basis.

The future American medical schools will be developed by the cooperation of the university and the community, and will be conducted with the conception of not only teaching medicine and carrying on medical research, but also as institutions which will bring to the community the great benefits of modern scientific medicine.

ELECTROTHERMIC METHODS IN TREATMENT OF NEOPLASTIC AND ALLIED DISEASES*

WILLIAM L. CLARK, M.D.
PHILADELPHIA

One who depends on a single method in the treatment of malignant diseases may not hope to obtain anything but a limited degree of success.

Experience has taught that operative surgery, electrothermic methods, radium and roentgen rays are all factors of such importance that none of them can be eliminated. All these methods are employed in our hospital, either alone or in combination, to meet particular indications, and if it was necessary to eliminate any one of them, we would be seriously handicapped. We hold no brief for any particular method, but experience has demonstrated the extreme importance of electrothermic methods, which, through a misunderstanding of them, have not yet taken their rightful place in surgery. We consider them second to none, and in many emergencies, superior to all the others.

My object in this paper is to emphasize the importance of electrothermic methods without detracting from the others, devoting it to a discussion of the rationale, instrumentation, technic, clinical findings and histologic findings, with indications for and the contraindications to their employment. The types of cases in which these methods stand supreme will be stressed and a sound basis for their employment demonstrated, with the hope of encouraging serious consideration of their unique advantages.

ELECTROTHERMIC METHODS

Two tissue changes produced by high frequency currents will be considered. These are classified descriptively, in accordance with the actual effects produced in the tissues, as desiccation and coagulation.

The desiccation method is one by means of which benign or malignant growths of small or moderate size may be destroyed by the utilization of heat of just sufficient intensity to desiccate or dehydrate the tissues. The heat is produced by a monopolar high frequency current of the Oudin type, the current being conducted to the lesion by means of a steel needle or other pointed metallic applicator. A single spark gap is usually employed in the circuit, although a good multiple gap may be used. The desiccation effect, as originally described, was produced by a high tension static current transformed into a high frequency current of suitable quality by means of Leyden jars of sufficient capacity, and a resonator supplying the proper inductance. However, since the advent of the modern transformer type of high frequency machine, it has been found that desiccation can be satisfactorily produced with the latter apparatus. The principal disadvantage of the former lay in the fact that static currents, being influenced by atmospheric conditions, were often not available in humid weather. High speed static machines are expensive and occupy considerable floor space. Modern high frequency apparatus is, on the other hand, compact, comparatively inexpensive, and uninfluenced by weather conditions.

There is an impression among many that the desiccation and the coagulation methods are one and the same. This is an error, since the effects produced on the tissues are quite different, and can readily be demonstrated both clinically and histologically. The Oudin current, by which desiccation is produced, is of relatively high voltage and low amperage, whereas the d'Arsonval current, by which coagulation is produced, is of lower voltage and higher amperage.

A milliampere meter cannot be used to measure accurately a monopolar current. The proper current strength necessary to destroy growths of different types and sizes can be learned only by experience. The desiccation effect may be produced in the tissues by delivering the current through a short air space, by just touching the surface, or by inserting the needle more or less deeply, depending on the degree of destruction desired.

The desiccation method is used advantageously when the lesion is localized and when good cosmetic results are not only desirable but essential. It is subject to such perfect control that an exceedingly small growth, even on the cornea, may be successfully treated without impairment of vision by the subsequent formation of scar tissue; a small growth on the vocal cords may likewise be destroyed without impairing the voice. The comparatively slight trauma to the tissues and the mild secondary inflammation explain, from a histologic standpoint, the slight scarring and the success obtained in treating these delicate structures.

Other conditions successfully treated by the desiccation method are localized benign growths of the larynx, bladder or rectum. Equally good results are obtained in lesions as refractory as corneal ulcers, pterygium and trachoma. Minor gynecologic conditions, such as cervical erosions and urethral caruncles, yield readily to desiccation treatment. Moles, papillomas, angiomas, nevus pigmentosus, leukoplakia, lupus vulgaris and lupus erythematosus further exemplify the great variety of pathologic conditions in which this method may be used successfully. The desiccation method is also an important factor in the treatment of malignant lesions of the skin and mucous membranes.

It is further desirable to give especial mention of this method in the treatment of hemorrhoids and infected tonsils. These subjects have been treated in separate papers and need not be discussed in the present one.

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*From the clinical and research departments of the Clark-Bass Hospital.

*Abstracted from a Mayo Foundation lecture delivered at the Mayo Clinic, Rochester, Minn., April 9, 1924, and also read before the American Academy of Physiotherapy in Boston, Oct. 16, 1925.

Coagulation is produced by a bipolar high frequency current of the d'Arsonval type, a multiple spark gap being utilized. It is more penetrating and intense than the desiccation method, and in accessible locations is utilized to destroy larger growths, even those involving bone.

There are many variations of technic in the application of this method to suit the requirements of the individual case. These cannot very well be described, but must be learned from practical experience. The active electrode should always be pointed. Steel sewing needles of various lengths may be employed; if still greater length is required, steel knitting needles or stiff wire cut to any length may be used, either straight or curved, so as to be adapted to particular anatomic locations. Since the effect of high frequency currents is entirely thermic, and not electrolytic, it matters not what particular metal is used. As it is impossible thoroughly to insulate these electrodes, care must be taken that only such tissues as are undergoing treatment shall be touched. The indifferent electrode, which is necessary in this method, may be of any material that will conduct electricity, such as a metallic plate or, preferably, a moistened asbestos pad. This should be placed in close contact with the skin of the patient's back. Both the active and the indifferent electrodes are connected by insulated wires to either side of the d'Arsonval winding of the high frequency machine. Good contact in all the circuit connections is of great importance. A meter should be connected in this circuit as a guide to the current strength employed, which varies from about 200 to 2,500 milliamperes, according to the size of the growth to be treated. The meter is not an infallible guide in estimating the action of the current, since the reading is also influenced by the size of the patient under treatment, or, in other words, by the amount of resistance in the circuit.

Doyen's method of coagulation consisted in the use of a blunt metallic electrode on the growth and of another of the same or larger size at some point near the growth. It has been found that the control by this technic is imperfect, and experience has taught that the pointed active and the large passive electrode is a superior method of application. While the current is passing, the needle may either touch the surface of the growth or be inserted into it, depending on the depth of destruction desired. In pedunculated growths, a metal snare may be used to advantage as the active electrode. As already stated, the d'Arsonval current, by which coagulation is produced, is of relatively low voltage and high amperage. If a short air space intervenes between the growth and the needle, the current will be conducted to the tissue in the form of convective sparks which sometimes approach the intensity of a flame, depending on the frequency of the oscillations in the current. Under such circumstances, the coagulation will be superficial. On the other hand, if the active electrode remains in contact with the growth, heat will be generated in the tissues without the production of sparks. Under these conditions the tissues will be deeply coagulated, the actual depth depending on the duration of the application. Better control of this can be accomplished by inserting the needle into the tissues to the desired depth. Unlike the heat generated by these high frequency currents, that produced by the actual cautery is comparatively superficial in action. The former is generated within the tissues by their resistance to the current, while the latter is merely transmitted by contact.

Whether the desiccation or the coagulation method is employed, the aim should be to destroy the growth at a single operation. The devitalized tissue should, as a rule, be immediately removed either by excision or by curettage, which usually may be accomplished without hemorrhage. If necessary, the base may then receive further treatment. When the mucous surfaces are involved, owing to the greater danger of secondary hemorrhage in these localities, the destroyed tissue is, with few exceptions, allowed to separate slowly. Bone that has been treated will sequestrate in about six weeks if a current of sufficient intensity has been employed. If important blood vessels are implicated, it is a safe procedure to ligate them preliminary to treatment.

In dealing with localized benign or malignant lesions, the superiority of the electrothermic methods over irradiation is shown by definite histologic changes and by comparison of permanent clinical results. With electrothermic methods, only diseased tissue is destroyed, the vitality of the surrounding normal structures being conserved. Subsequent treatments, should they be necessary, offer as good prospects of success as though the tissue had not received previous treatments. On the other hand, with irradiation of sufficient intensity to influence a malignant growth, it is impossible not to lower the vitality of the surrounding normal tissue to a certain extent; in case of recurrence, little more can be hoped for from further irradiation, owing to the resulting fibrous changes. This is a fact well known to radiologists. Because of these resulting changes, irradiation should not be used in conjunction with electrothermic methods in localized benign or malignant lesions. There are many cases in which the electrothermic methods are not applicable and in which irradiation is preferable, but our experience has been such that we feel very strongly that the electrothermic methods alone should be used in the type of lesion mentioned.

High frequency machines, as devised by different manufacturers, vary greatly in construction; hence there is a corresponding variety in the quality of the currents produced. The thermic intensity is often too great or too little, and an undesirable faradic effect, producing shocks and contraction of the tissues, is experienced when improperly constructed machines are used. This lack of standardization is unfortunate, since, to produce the desiccation or coagulation effect under the best conditions, a very accurate balance must be maintained between the voltage and the amperage, and also between the capacity, inductance and resistance. Thus, different operators, employing different types of apparatus, may obtain different results. A machine giving a satisfactory therapeutic current may not be suitable for good surgical work. We have found it necessary to have machines constructed according to definite specifications, to enable us to obtain the various factors necessary for our particular requirements. Even with a machine constructed on correct lines, the difficulty of application lies principally in the acquirement of a proper technic. Much harm can be done by an operator without practical knowledge of the various factors involved. This warning is timely, since a considerable number of cases come under our observation that have been improperly treated with high frequency currents. We have heard these methods condemned by capable surgeons who have employed them, but on studying their technic, it has been easy to comprehend

the reasons for their dissatisfaction with the results obtained. One who sincerely studies these methods cannot fail to be impressed with their merits.

Electrothermic methods can be best practiced only by those who have had surgical training and experience. They are quite as surgical in practical application as operative surgery, requiring the same precise knowledge of anatomic landmarks and the same surgical judgment that every good operator must have. The probable reasons for the apathy that exists in regard to these methods are that surgeons do not realize their potency and that those who use them without surgical accomplishments frequently fail in their practical application.

The efficiency of these methods is increased in some cases by the judicious combination of operative surgery, radium and the roentgen rays. Electrothermic methods should be used alone only in localized tumors of a type that does not tend to metastasize. The basal cell type of epithelioma occurring on cutaneous surfaces, such as the face and eyelids, even though extensive, and with involvement of bone, may be so thoroughly treated by the desiccation or coagulation method that recurrences are infrequent.

In localized squamous cell epitheliomas on cutaneous surfaces or mucous membranes, the results obtained are almost as good as in the basal cell type. However, when the growth is no longer localized and metastasis has occurred, other methods must be used in addition. A fair measure of success is obtained even in these cases. The grading of tumors according to Broder's method gives some indication as to prognosis and has an influence on the choice of treatment.

Electrothermic methods are peculiarly adapted to the treatment of localized malignant growths occurring in any part of the oral cavity. In the treatment of growths of the urinary bladder and larynx, suitable endoscopes must be employed to render the growth accessible for treatment. The choice between local or general anesthesia is governed by the same principles as in operative surgery.

As an example of an operation by the coagulation method, amputation of the tongue will be described. If the case is far advanced, with considerable general emaciation, it is our practice to do a preliminary gastrostomy. This has several advantages; namely, it permits of the building up of the patient's strength, relieves the pain incident to swallowing, and frequently results in a considerable reduction of the swelling and induration in the tongue and pharynx following the rest given to these parts. The tongue can be coagulated readily through its base and then excised, with infrequent secondary hemorrhage; but to obviate these dangers completely, it is considered safer to do a preliminary ligation of the lingual, or of one or both of the external carotid arteries. Ether anesthesia is employed. The ether should be removed from the room when the patient is fully under its influence and before the current is applied, else it might ignite. Should the operation be unusually prolonged and the patient show signs of regaining consciousness, the operation may be temporarily discontinued as often as required, and ether again administered. As a rule this operation is of such short duration that the use of ether a second time is not necessary. Scopolamine, $\frac{1}{100}$ grain (0.6 mg.), and morphine, $\frac{1}{4}$ grain (16 mg.), may in some instances be used hypodermically one hour before the administration of ether. Less ether will be necessary under such conditions and the immediate postoperative discomfort minimized.

After the jaws have been separated with a mouth gag, a heavy silk suture is passed from side to side through the tip of the tongue, by means of which it is drawn well forward. The coagulation needle is then brought in contact with the anterior surface of the tongue as far back as is necessary, and the current turned on, either by the operator by means of a foot control, or by an assistant on signal. The needle is then moved across the tongue and carefully inserted into it at different points, coagulation being allowed to take place as it moves. After this has been thoroughly accomplished, the tip of the tongue is elevated by means of the suture, and a straight, sharp sewing needle of proper length is substituted for the curved knitting needle previously used. The frenum is then coagulated, and the needle inserted between the tongue and the floor of the mouth. When coagulation is again completed, curved scissors may be used to cut through the coagulated areas on both surfaces, and the tongue then separated from its attachments. After-treatment consists of simple antiseptic mouth washes and the application, two or three times daily, of a weak solution of sodium hypochlorite, which sterilizes, deodorizes and tends to keep the slough firm and free from maceration. Care should be taken not to remove the slough prematurely, else secondary hemorrhage may occur. When a preliminary ligation has been performed, this, of course, is not so much to be feared. Such a major electrothermic operation should be performed in a well appointed operating room, the same preparatory technic being used as in any surgical operation.

In addition to the desiccation or coagulation of the affected tissues and the sealing of blood and lymph channels, the heat penetrates beyond the area totally destroyed and devitalizes malignant cells, without permanently impairing the healthy tissue, thus lessening the likelihood of local recurrence or metastasis, and conserving the maximum amount of normal tissue. Malignant cells, especially those that are least differentiated, are more vulnerable to heat, and are devitalized at a lower degree of heat than are normal cells. This thermic sensitiveness to the action of the high frequency current has often been observed clinically and demonstrated histologically. The success obtained in the treatment of malignant disease by the desiccation and coagulation methods is explained by the fact that all the malignant tissue was, when possible, destroyed with one radical treatment. The practice of intentionally treating a malignant lesion by a series of desiccation or coagulation operations is reprehensible and must be discouraged. It is quite as irrational to do this as to expect success by excising surgically a cancerous growth in a series of operations.

HISTOPATHOLOGIC STUDIES

In the vast majority of instances, histologic studies of neoplasms are limited to diagnosis. Since the advent of radium and the roentgen ray, not a little attention has been given to the changes in the tissue following the use of these agents; namely, the hydropic and fatty metamorphosis of the cytoplasm, the pyknotic nuclei, the round-cell infiltration, and the vascular and fibroblastic changes. As far as is known, no studies have hitherto been made of the histologic changes that have followed the use of the desiccation and the coagulation methods. During the routine of tissue examination for diagnostic purposes, the appearance of the cells submitted to desiccation and coagulation was observed

to be entirely unlike those treated with radium and roentgen rays. This led to further investigation.

Clinically summarized, the aim of the electrothermic methods is to destroy malignant cells, to seal blood vessels, and obtain a healing wound with the least amount of cicatrization.

In order to correlate the histologic findings with the clinical results obtained, microscopic examination of tissues submitted to desiccation and coagulation treatment was undertaken. The material used consisted chiefly of epitheliomas (basal and squamous cell type) and normal tissues of laboratory animals. The investigation entailed the study of the effect of the current on the cells and blood vessels in the immediate and remote areas of the fields of operation. The histologic pictures obtained were so well defined and uniform as to stamp them with certain characteristics. The cells submitted to desiccation treatment were shrunken and shriveled, and their nuclei condensed and elongated, with a suggestion of cell outline; the whole had assumed a mummified appearance. The blood vessels were thrombosed, and there were no evidences of hemorrhage. In the case of coagulation, the cell outline was entirely lost, and the affected tissue elements were fused into a structureless homogeneous mass, presenting an appearance not unlike that of hyalinization.

Because the tissues examined were those obtained at the operating table, no opportunity was afforded to observe the cell reaction likely to occur in the zone adjacent to the area treated. Guinea-pigs and rabbits were used for this purpose. Small areas of skin, subcutaneous tissue and muscle were submitted to desiccation or coagulation treatment and the animals returned to their cages. Several days later sections were removed for study. They revealed practically the same tissue changes already noted, but, in addition, there was round-cell infiltration in the outlying zones; in certain areas this infiltration was localized around the blood vessels.

These are the fundamental principles of pathology on which the histologic studies were based, and it is in this sense that tissues treated by electrothermic methods present histologic pictures that are of such uniformity and constancy as to endow them with specific histologic characteristics; namely, the shrunken and elongated appearance of the cells and their nuclei, the round-cell infiltration in the case of desiccation, the complete loss of cell outline and hyalinized appearance of the tissue, and thrombosis of blood vessels and round-cell infiltration in the case of coagulation.

The electrothermic methods are dependent for their results on the resistance of the tissues to the current, which manifests itself in the formation of heat.

In the case of desiccation, the current is of comparatively low amperage and only a moderate degree of heat is produced; it is of sufficient intensity, however, to cause complete evaporation of the water content of the cells and to give them their mummified appearance. Since the mode of cell death is associated with very little degenerative change and scant disintegrated material, there is only a small amount of fibrous tissue as an end-result; hence the good cosmetic results. Incidentally, the neighboring healthy tissues are spared the devitalization resulting from the formation of abundant contractile fibrous tissue. The coagulation method, requiring a higher amperage, induces a more intense heat, so that it not only dehydrates the tissues, but causes coagulation of the cell protoplasm. This greater degree of destruction results, as we have learned to expect, in a proportionately greater amount of fibrous tissue formation.

Thus, not only are the aims attained, as stated at the outset, but the electrothermic methods are placed on a histologic basis and correlated with clinical results.

2215 Walnut Street.

HILUM TUBERCULOSIS

RELATIVE VALUE OF SYMPTOMS, PHYSICAL SIGNS AND ROENTGEN-RAY FINDINGS IN THE DIAGNOSIS OF BRONCHIAL GLAND TUBERCULOSIS *

DAVID ZACKS, M.D.
BOSTON

In the weekly report of the state health department to the *Boston Medical and Surgical Journal* [1] appears for the first time the item, "Tuberculosis, hilum, sixty-one cases." This, of course, is a direct result of the activity of the Massachusetts Department of Public Health in finding bronchial gland tuberculosis among the school children of the state. This means that the disease is now recognized as an entity and that it can be diagnosed with more or less certainty.

In order to realize fully the significance of this report, it is necessary to trace briefly the history of this disease. Up till 1910-1911, it was generally accepted that tuberculosis begins at the apex of the lung, particularly the right apex. Already there were those, however, who believed in pulmonary lymphatic tuberculosis, some holding that it was primary, and some, secondary to a pulmonary lesion. Lymph gland tuberculosis was thought to be of little importance.

At the present time, the preponderance of evidence is for the theory that the tuberculous infection begins early in childhood and shows its first clinical manifestation in the hilum glands; spreads in a retrograde fashion upward and outward into the lung parenchyma, and is later recognized as pulmonary tuberculosis, as it is ordinarily found in the adult.

While pathologists were debating the primary focus, d'Espine [2] called attention to a physical sign which, he believed, was due to enlarged tuberculous bronchial glands. He appreciated, however, that acute infections (measles, whooping cough and mumps) may give rise to enlarged glands in this region; but he regarded these glands as tuberculous only if the sign persisted six months or more after recovery from such acute disease. Assmann [3] gives de la Camp and Kohler the credit for being the first to diagnose this condition by roentgen ray (1904-1906).

At a meeting of the American Sanatorium Association in December, 1922, a committee headed by Dr. H. D. Chadwick [4] defined the term "hilum tuberculosis" and recommended its addition to the present classification. This was accepted by the association at its annual meeting of the current year.

This term as defined by the committee applies to those cases of tuberculosis in children who present the

* Based on a study of 2,285 school children.
* From the Massachusetts Department of Public Health.

1. Report of the Massachusetts Department of Health, Boston M. & S. J., July 9, 1925.
2. D'Espine, A.: The Early Diagnosis of Tuberculous Bronchial Adenopathy in the Child, Brit. M. J. **2**: 1136, 1910.
3. Assmann, H.: Die klinische Röntgendiagnostik der innern Erkrankungen, Leipzig, 1922.
4. Chadwick, H. D.: Tuberculosis in Children, Boston M. & S. J. **191**: 58 (July 10) 1924; The Evolution of Juvenile Tuberculosis, ibid. **191**: 252 (Aug. 7) 1924; Proposed New Classification of Juvenile Tuberculosis, ibid. **191**: 1069 (Dec. 4) 1924.

following symptoms and physical signs controlled by the Pirquet reaction and roentgen-ray findings:

Symptoms.—Local: Frequent "colds," cough, hoarseness, rarely loss of voice. All may be absent and, when present, are usually transitory.

Constitutional: Undue fatigue, lassitude, nervous irritability, anorexia, weight normal but more often subnormal; retardation of growth, rarely loss of weight, tendency to profuse perspiration without apparent cause, occasionally brief periods of unexplained elevation of temperature (above 99.6 F., rarely over 100.5 F.), flabby muscles, fatigue posture, phlyctenular disease (keratitis, conjunctivitis), scrofuloderma and lupus.

Physical Signs.—Paravertebral dulness; voice and breath sounds normal. Râles are rarely found, and, when present, are due to causes other than tuberculosis.

Roentgen-Ray Findings.—1. Prominent bronchial trunks with definite beaded appearance or nodular in outline extending from the hilum.

2. Enlarged lymph nodes, varying in number and density, embedded in the thickened tissue of the hilum.

3. Diffuse shadows of varying density throughout the hilum. Occasionally there are cloudy masses with irregular outlines projecting into the adjacent tissue, resulting from involvement of the deep parenchyma.

Dr. J. B. Hawes,[5] however, points out a lack of agreement between clinicians, on the one hand, and radiologists, on the other, as to what factors enter into a diagnosis of this condition. He says: "The whole subject of diagnosis is still in a stage of doubt and uncertainty. Signs at the best are unreliable and x-ray evidence at present of little value. Diagnosis should be based on history, exposure, positive Pirquet and constitutional signs and symptoms." On the other hand, Chadwick,[4] Barjon,[6] Shennon,[7] Potter,[8] Rieder,[9] Fisher,[10] von Ohlem,[11] Planner,[12] Simpson,[13] Honeij,[14] and Méry and Girard[15] believe that a diagnosis can be made by clinical methods controlled by roentgen ray and the tuberculin test.

This study is based on 2,285 cases. A reactor group (positive Pirquet reaction) of 1,176 cases is compared with a nonreactor group (negative Pirquet reaction) of 1,109 cases. In the reactor group are 472 boys and 704 girls. In the nonreactor group are 430 boys and 679 girls. The ages are from 6 to 15.

Tables 1 and 2 present the evidence showing the relative value of symptoms.

Table 1 shows that there is some slight difference with regard to the frequency of the first four symptoms; namely, frequent "colds," poor appetite, tendency to tire easily, and nervousness, when the reactor group is contrasted with the nonreactor group. There is, however, a decided difference with regard to underweight, which is not only a subjective but also an objective symptom. In 64.3 per cent of the reactor group, 7 per cent or more are found underweight, against 49 per cent of the nonreactor group. It is important to note that 21 per cent of the reactor group are 15 per cent or more underweight, against 11.7 per cent of the nonreactor group.

TABLE 1.—*Comparison of Symptoms in Reactor Group (1,176 Children) and Nonreactor Group (1,109 Children)*

Symptoms	Reactor Group		Nonreactor Group	
	Number	Per Cent	Number	Per Cent
Frequent colds	322	27.3	252	22.7
Poor appetite	294	25.0	227	20.4
Tendency to tire easily	351	29.8	290	26.9
Nervousness	439	37.2	386	34.8
Sweating	110	9.3	94	8.4
Night terrors	78	6.6	56	5.0
Hoarseness	12	1.0	13	1.1
Cough	45	3.8	45	4.0
Underweight *				
7%	212	18.0	180	16.1
10%	297	25.3 64.3%	237	21.4 49.2%
15%	248	21.0	130	11.7
Under 7%	419	35.6	553	49.8

* Baldwin-Wood weight-height-age tables.

Table 2 shows the result of a comparative study of symptoms in those cases diagnosed "hilum," those called "suspicious" and those which were regarded as "negative." Children in the "suspicious" group present some evidence of hilum disease but not enough to make a definite diagnosis. The outstanding symptom in both the "hilum" and "suspicious" groups (as in Table 1) is underweight: 76.5 per cent and 71.8 per cent, respectively, against 58 per cent in the negative group. The other symptoms assume a more definite value. These, relative to their frequency, are: a tendency to tire easily, nervous irritability, frequent "colds," sweating, night terrors, cough and hoarseness.

TABLE 2.—*Comparison of Symptoms in Hilum, Suspicious and Negative Groups*

Symptoms	Hilum, 277 Cases		Suspicious, 426 Cases		Negative, 508 Cases	
	No.	%	No.	%	No.	%
Frequent colds	101	36.3	121	28.4	119	23.4
Poor appetite	62	22.3	78	18.2	163	32.0
Tendency to tire easily	138	49.8	135	31.6	104	20.4
Nervousness	135	48.7	182	42.7	155	30.5
Sweating	42	15.1	43	10.0	36	7.0
Night terrors	28	10.1	26	6.0	29	5.7
Hoarseness	10	3.6	2	0.4	5	0.9
Cough	18	6.4	15	3.7	10	1.9
Underweight						
7%	39	14.0	80	18.8	90	17.7
10%	94	33.9 76.5	120	28.1 71.8	119	23.4 58.4
15%	80	28.6	107	24.9	88	17.3
Under 7%	64	23.1	119	27.9	211	41.5

TABLE 3.—*Relative Frequency of Interscapular Dulness*

	Per Cent
Nonreactor group	35
Reactor group	41.9
Hilum	74.0
Suspicious	51.0
Negative	27.7

Table 3 shows the relative frequency of interscapular dulness. In the hilum group, interscapular dulness was found in 74 per cent of the cases; in the suspicious group, 51 per cent, and in the negative group, 27.7 per cent. In the reactor group as a whole, interscapular dulness was found in 41.9 per cent, against 35 per cent in the nonreactor group.

Table 4 shows the result of a study in the relative value of the factors deemed vital in making a diagnosis

5. Hawes, J. B., Jr., and Friedman, Eli: Bronchial Gland Tuberculosis, Boston M. & S. J. **192**: 954 (May 14) 1925.
6. Barjon, F.: The Radiodiagnosis of Pleuropulmonary Affections, translated by Honeij, J. A., New Haven, Yale University Press, 1918.
7. Shennon, T.: Tuberculosis in Children, Particularly with Reference to Tuberculosis of Lymphatic Glands, Tr. 6th Internat. Cong. Tuberc. **2**: 365, 1908.
8. Potter, H. E.: X-Ray Diagnosis of Tuberculosis of the Lungs and Bronchial Glands, Lectures Before the Robert Koch Society for the Study of Tuberculosis, Chicago, 1916, p. 34.
9. Rieder, H.: Die frühzeitigen Erkennung der Lungentuberkulose mit Hülfe der Röntgenstrahlen, Deutsch. Arch. f. klin. Med. **45**: 62, 1909.
10. Fisher, E.: Hilum Tuberculosis in Children and Adults, Lancet **1**: 814, 1919.
11. Von Ohlem: Zur Frühdiagnose der hilusdrusen Tuberkulose, Beitr. z. Klin. d. Tuberk. **45**: 343, 1920.
12. Planner: Wie erfast man die Tuberkulose in der Schule? Beitr. z. Klin. d. Tuberk. **55**: 149 (May) 1923.
13. Simpson, R.: The Problem of Tuberculous and Pretuberculous Child, Practitioner **112**: 193 (March) 1924.
14. Honeij, J. A.: Peribronchial Tuberculosis of the Lung, Am. Rev. Tuberc. **9**: 1 (March) 1924; The Importance of Mediastinal Glands, J. A. M. A. **57**: 958 (Sept. 16) 1911.
15. Méry, H., and Girard, L.: Les fármes actives des adénopathies tuberculeuses du hile chez l'enfant, Rev. tuberc. **1**: 289, 1920.

of hilum tuberculosis. Individually, these factors in the order of their relative importance are, first, roentgen-ray evidence; second, symptoms, and third, physical signs. The tuberculin test, of course, must be positive. In the final analysis, however, not one factor but all are necessary to make a diagnosis. In 57.3 per cent diagnosis was based on symptoms, physical signs and roentgen-ray findings, and in 18 per cent, on physical signs and roentgen-ray findings. In only 3.9 per cent was the roentgen ray alone deemed sufficient to make a diagnosis. This table shows very clearly that there is a relative value placed on symptoms, physical signs, and roentgen-ray evidence. What the relative value is with regard to symptoms is shown in Tables 1 and 2. Table 5 shows the relative value of roentgen-ray findings.

TABLE 4.—*The Relative Value of Factors Deemed Vital in Making a Diagnosis of Hilum Tuberculosis*

Diagnosis Based on	Hilum		Suspicious		Negative	
	No.	%	No.	%	No.	%
1. Roentgen-ray evidence only	11	3.9	46	10.7	141	27.7
2. Roentgen-ray evidence, physical signs and symptoms	159	57.3	129	30.2	23	4.5
3. Roentgen-ray evidence and symptoms	57	20.5	152	25.6	110	21.6
4. Roentgen-ray evidence and physical signs	50	18.0	60	14.0	65	12.7
5. Physical signs and symptoms	0	0.0	29	6.8	47	9.2
6. Symptoms only	0	0.0	10	2.3	57	11.2
7. Physical signs only	0	0.0	0	0.0	18	3.5
8. Positive reaction only	0	0.0	0	0.0	47	9.2

The roentgen-ray shadows seen at the hilum of children between 6 and 15 years of age who react to the tuberculin test seem to fall naturally into three more or less definite and distinct groups which may be expressed relatively according to their densities and extent by the numerals 1, 2 and 3, as expressed by Chadwick and Morgan. If, in addition, shadows interpreted as glands (bronchial, mediastinal) are present at the hilum, these in turn may be expressed by 1 +, 2 +, 3 +. Further, if discrete, circumscribed shadows (interpreted as calcified or fibroid tubercle) representing primary foci are present in the lung field, these may be expressed by 1 P or 1 + P, etc.

TABLE 5.—*Relative Importance of Roentgen-Ray Shadows in Diagnosis of Hilum Tuberculosis*

	Hilum	Latent Hilum	Suspicious	Negative	Total
Shadow 1	1	0	33	158	192
Shadow 2	17	1	153	222	393
Shadow 3	8	2	28	21	59
Shadow 1+	3	0	13	19	35
Shadow 2+	97	13	192	71	373
Shadow 3+	67	16	42	6	131
Shadow 1P	1	0	3	0	4
Shadow 2P	8	1	8	0	17
Shadow 3P	4	0	3	0	7
Shadow 1+P	0	0	1	0	1
Shadow 2+P	32	11	7	0	50
Shadow 3+P	27	6	3	0	36
Total	265	50	486	497	1,298

Table 5 shows the significance placed on roentgen-ray shadows. In the cases diagnosed as hilum appear the shadows 2 +, 3 +, 2 + P, 3 + P, etc. In the negative group, on the other hand, appear the shadows 1, 2, 3. It is seen, therefore, that the moderately dense and dense shadows at the hilum, especially with glands and linear markings or calcified glands or tubercle in the deep parenchyma of the lung, most frequently found in the lower and mid-lung areas, rarely at the apexes, are regarded as most significant. This is in agreement with Honeij,[14] Dunham,[16] Rieder,[9] Potter[8] and Pratt and Bushnell.[17]

Table 6 shows a relative study based on such a classification as outlined above. Several points are of interest. Shadow 2 with or without glands, with or without pulmonary infiltration or calcified tubercle, occurs most frequently, and more often at ages 10, 11, 12 and 13. Shadows 1 P and 1 + P are rarely found; nor is this to be expected, if our interpretation of these shadows is correct. For when glandular infection has occurred or is present, the reaction at the hilum would be expected to show on the roentgenogram by 2, 2 +, 3, 3 +, etc., which is indeed the case. Furthermore, out of 1,298 children, 626, or 48 per cent, between the ages of 6 and 15, show glandular enlargement at the hilum. This I consider a point of great significance, for postmortem examinations in children under 15 years of age show similar findings. Sato,[18] in 1,357 necropsies of children under 15 years of age in Japan, found 37 per cent affected, always in the lymph nodes (mediastinal and pulmonary). Babes,[19] in 902 postmortems, found this condition in 32 per cent. Mueller,[20] in 500 necropsies, found 45 per cent, always in the glands.

TABLE 6.—*Relation of Age to Roentgen-Ray Shadow Seen at Hilum of Children from 6 to 15, Who Reacted to Tuberculin Test*

	Age										
	6	7	8	9	10	11	12	13	14	15	Total
Shadow 1	10	14	26	14	22	30	34	18	15	9	192
Shadow 2	10	30	36	26	56	61	60	50	44	20	393
Shadow 3	3	2	8	3	6	5	8	11	8	5	59
Shadow 1+	2	2	2	2	6	3	5	5	4	4	35
Shadow 2+	9	19	32	45	49	62	55	44	39	19	373
Shadow 3+	2	3	11	12	12	23	14	20	23	11	131
Shadow 1P	0	0	0	0	2	1	0	1	0	0	4
Shadow 2P	0	1	5	1	3	3	2	0	1	1	17
Shadow 3P	0	1	0	0	0	1	1	2	1	1	7
Shadow 1+P	0	0	0	0	1	0	0	0	0	0	1
Shadow 2+P	2	1	6	7	6	6	8	7	6	1	50
Shadow 3+P	2	2	5	13	15	2	5	3	8	1	36
Total	40	75	131	113	168	197	192	161	149	72	1,298

COMMENT

Tuberculin Reaction.—It is found that 29.2 per cent of children between 6 and 15 years react to the tuberculin test. (At 6 years, 2.7 per cent; 7 years, 5.4 per cent; 8 years, 8 per cent; 9 years, 9 per cent; 10 years, 12.4 per cent; 11 years, 13.6 per cent; 12 years, 15.6 per cent.) The first figure, 29.2 per cent, applies to the state-wide examination of 10,648 children. I worked out the individual percentages for ages from the 1,176 cases; ages under 6 and over 12 were not included. Opinions vary as to the significance of the Pirquet reaction in children over 2 years of age. On the one hand is the generally held opinion expressed by Pratt and Bushnell,[17] who in their recent book say that the reaction in older children is of little value, as it is not necessarily connected with the condition supposed to indicate tuberculosis. On the other hand, Chadwick[4] and others (Pirquet,[21] Much,[22]

16. Dunham, H. K.; and Skavlem, J. H.: Tubercle **5**: 217 (Feb.) 1924.
17. Pratt, J. H., and Bushnell, G. E.: Diseases of the Chest, Philadelphia, W. B. Saunders Company, 1925, pp. 226-235.
18. Sato, T.: Abstracts from Japan M. World **4**: 45 (Feb.) 1924.
19. Babes, quoted by Harbitz, F.: Studies in the Frequency Localization and Modes of Dissemination of Tuberculosis, J. Infect. Dis. **10**: 143, 1905.
20. Mueller, quoted by Cornet, G.: Die Tuberkulose, p. 178.
21. Pirquet, C.: The Frequency of Tuberculosis in Childhood, Tr. 6th Internat. Cong. Tuberc. **3**: 559, 1908.
22. Much, Hans: Tuberculosis of Children, New York, the Macmillan Company, 1921.

Simpson[13] and Planner[12]) hold that in the presence of a reaction the child should be investigated for powers of resistance or immunity. If the resistance is found subnormal by certain symptoms (subnormal weight for height and age is the most important), by physical signs and by roentgen-ray evidence, these should be corrected by proper dietetic and hygienic treatment, in order to prevent these children from becoming tuberculous adults. Blos,[23] in Czerny's clinic, followed 160 cases showing tuberculous lymph nodes from three to twelve years and found that in 40 per cent secondary tuberculosis developed. Follow-up work among these children will be most instructive on this point. The latter view is the most conservative, and from the point of view of preventive medicine the most practical to pursue. If it is argued that the nonreactors who have never been infected and therefore have no immunity are in greater danger of a primary infection, this is admitted. We can see no better solution for this than to have the family or school physician, with full appreciation of this fact, guard the children under his care with this point in view.

Symptoms.—The first and most important symptom found in this study is underweight. This corresponds with the opinion of Holt.[24] A greater percentage of reactors is found in the underweight group, almost 2 to 1. The whole school population of a small town was given the test, with the result that only 14 per cent reacted, as compared with 29.2 per cent of reactors found in the selected underweight group in other towns and cities. This point will be investigated further. Other symptoms of importance are a tendency to tire easily, nervous irritability, frequent "colds," sweating, night terrors, cough and hoarseness.

Physical Signs.—Interscapular dulness was found in 70 per cent of the hilum and suspicious cases. This dulness is best elicited by light percussion over comparable areas. In addition to the dull note, a sense of resistance is also felt under the pleximeter finger. This resistance is due to a reflex causing muscle spasm and is found when the hilum glands are actively diseased. The spasm is best appreciated by light touch palpation so well described by Jacobson.[25]

Râles were found twice as often in the nonreactor group as in the reactor group. It is of interest to note that 70 per cent of the hilum and suspicious groups were marked suspicious by the examining physicians before the results of either the roentgen-ray or tuberculin tests were known. Twenty per cent of the negative cases, however, were marked suspicious by the same examiners. Cardiac murmurs were found in 1 per cent of the nonreactors against 0.5 per cent of the reactors. This is of interest because, as is well known, cardiac disease among the tuberculous is less common than in the general population. The much discussed d'Espine's sign and the Eustace Smith sign were not included in this analysis. Dr. Chadwick regards them of little significance.

Roentgen-Ray Evidence.—The most frequent roentgen-ray finding is a moderately thickened hilum with shadows interpreted as glands (bronchial, mediastinal) within this thickened area. Special emphasis is placed on linear markings or beading running from the hilum into the deep parenchyma, and circumscribed discrete areas of density in the lung parenchyma (interpreted as calcified or fibroid tubercle). These are also known as Ghon's primary focus.

Diagnosis.—The diagnosis of hilum tuberculosis in school children is based on a conservative evaluation of certain symptoms (underweight for age and height being most important), physical signs (relative interscapular dulness) exclusion of other diseases and control by roentgen-ray examination and tuberculin test. By this method, 459 cases out of 10,648, or 5 per cent, were diagnosed hilum tuberculosis. This is in agreement with Planner,[12] who found an exactly similar percentage.

71 Georgia Street.

23. Blos: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1899.
24. Holt, L. E.: Food, Health and Growth, New York, the Macmillan Company, 1922.
25. Jacobson, Clara: Light Touch Palpation, Am. Rev. Tuberc. 6: 394 (July) 1922.

OXYGEN INFLATION OF THE PERITONEAL CAVITY IN EXUDATIVE TUBERCULOUS PERITONITIS

A. L. GARBAT, M.D.
Associate Physician, Lenox Hill Hospital
NEW YORK

The treatment of the exudative form of tuberculous peritonitis by abdominal puncture, with evacuation of the fluid, followed by the injection of oxygen, is so much simpler than the usually advised laparotomy that it seems worth while to add another case to those already reported in which this method has been of value.

REPORT OF CASE

R. D., a man, aged 40, one of eight healthy children, with mother and father alive and well, gave no history of tuberculosis, nor had he ever been seriously ill before. From five to six weeks previous to the time he consulted me, he began to have fever up to 101 in the evening, and complained of slight headache and malaise. It was considered to be a mild grippal infection. The fever, however, persisted; the weight diminished, a mild, unproductive cough developed, and profuse night sweats set in. I first saw him, May 23, 1925, and at that time there was slight dulness at both bases of the lungs, but no involvement of the apexes. The heart was normal. The liver and spleen were not enlarged. There were no petechiae or roseola on the skin.

He was admitted to the Lenox Hill Hospital, May 28. His temperature became higher and remittent in character, varying from 100 F. in the morning up to 104 F. in the evening. Repeated blood cultures were negative; repeated blood counts showed a mild secondary anemia with a leukopenia of about 5,000, but a fairly normal differential count; the sputum examination was negative; three Widal tests done at weekly intervals showed definite loss of motility and clumping in dilutions up to 1:80, although no typhoid bacilli were ever found in the urine or stool, in spite of most careful search. Roentgen-ray examination of the lungs showed some increased density of the left apex, and marked bronchial thickening throughout.

The general condition of the patient continued to show no improvement: the fever persisted; the pulse increased in frequency; the night sweats became more profuse, and the loss of weight became more marked. The spleen was never palpable or enlarged on percussion.

June 1, seven weeks after the onset of the illness, signs of a pleuritic exudate appeared at the base of the right lung. Fifty cubic centimeters of clear yellow fluid was removed, which was sterile on culture, and had a cell count of 8,640, of which 98 per cent were lymphocytes. About this time, also, ascites became evident, which quickly increased in amount so that the patient became very uncomfortable in partaking of food, and respiration became labored. June 18, the abdomen was punctured in the left iliac region, and more than 3,000 cc. of clear yellow fluid was removed. The trocar employed for the puncture was sufficiently large to permit

passage through it of a rubber catheter. When all the liquid had been drained, the end of the catheter was connected with a sterile glass tip attached by a rubber tube to an oxygen tank, and oxygen was permitted gradually to flow into the peritoneal cavity until the abdominal wall became definitely distended, and the patient complained of discomfort. The trocar and catheter were then removed, and the small skin puncture closed by a single suture in order to prevent the escape of the gas. The fluid removed had a specific gravity of 1.016, with a cell count of 2,000, and 100 per cent of lymphocytes. Cultures were sterile. The abdominal distention from the oxygen persisted for about four days.

In the course of the next two weeks, the exudate in the right chest gradually diminished, but fluid appeared in the left chest, from which, July 6, 200 cc. of clear yellow fluid was removed. A slight amount of abdominal ascites gradually recurred, but not sufficient to require tapping.

The general condition of the patient now began to improve: the fever began to subside, so that July 27, about three and a half months after the onset of the illness, it reached normal, and remained there; the sweats gradually disappeared; the appetite and weight increased; the fluid in the chest and abdomen was absorbed. The patient is now (November 14) back to his original weight, and apparently perfectly well. The Widal test, October 6, was negative. I have noted a positive Widal test due to nonspecific agglutinins during the acute stage of a tuberculous infection in a previous case, and a similar occurrence was reported by Zinsser.[1]

COMMENT

There is no doubt that we dealt here with a case of tuberculous peritonitis, which was definitely and favorably influenced by the removal of the abdominal fluid and inflation with oxygen. One cannot, however, be too definite in adjudging the beneficial effects of any particular form of therapy in tuberculous peritonitis. According to Ochsner,[2] 50 per cent. of these patients are relieved by medical treatment, and Allbutt and Rolleston[3] believe that spontaneous cure occurs in 50 per cent. Most of these patients get the benefit of the best hygienic measures, which undoubtedly add greatly to the favorable results. Usually, many different forms of treatment are tried at the same time, so that it is difficult to evaluate any specific mode of procedure. For example, in our patient, heliotherapy was also employed, in the form of the quartz lamp for several weeks while he was at the hospital and later on when he was moved to the country, the abdomen and chest were exposed directly to the sun's rays.

Nevertheless, it has long been recognized (since Spencer Wells, in 1862, unintentionally operated on a patient with tuberculous peritonitis, with a prompt recovery), that simple laparotomy in exudative tuberculous peritonitis brings about a striking change for the better, and subsequent recovery. One is not certain whether this beneficial influence is due to the exposure of the peritoneal cavity to the sunlight, or to the air or its oxygen.

Puncture of the abdomen with evacuation of the ascitic fluid, followed by inflation with oxygen, has been proposed instead of the laparotomy mentioned in the foregoing. The former is undoubtedly a much more simple technical procedure, so that it can be employed at home by the general medical attendant, and does not expose the usually very ill patient to the shock of a laparotomy and a narcosis. Furthermore, it can be repeated as often as necessary, when the exudate reappears. In our patient, improvement set in after the first paracentesis, but that is unusual. The results reported from this method by other authors do not seem to be known generally, but are distinctly encouraging. A review of the literature on this topic has therefore been undertaken.

The first publication appeared as far back as 1893 in an article by Mosetig-Moorhof,[4] who called attention to a new treatment for tuberculous peritonitis by removal of the fluid through abdominal puncture, and subsequent air injection. This report was of a child, aged 4 years, with tuberculous peritonitis and epididymitis, in whom the testis was excised, and, through the inguinal canal, 1,700 cc. of fluid was evacuated, followed by distention of the peritoneal cavity with air. The child made a complete recovery. The same year, but several months later, Nolen[5] independently recommended the same form of therapy as a new method. He reported three cases, with recovery in two, the third patient having died of an advanced intestinal tuberculosis.

In the German literature, Biedert-Fischl[6] reported two patients cured this way.

Jakobaeus[7] reported six cases of tuberculous peritonitis in adults, five of which were cured by removal of ascitic fluid, followed by air injections. The patient who died had an associated severe infection of the intestines and lungs.

Schmidt,[8] in his last work, advised injection of from 1 to 2 liters of oxygen into the peritoneal cavity after abdominal puncture, as he believed that the contact with the air was the curing agent.

Koestle[9] mentioned the use of air injections in cases of tuberculous peritonitis, but did not cite cases or definite results.

David[10] also stated that he had frequently employed oxygen, air and nitrogen injections in tuberculous peritonitis, to good advantage.

Sorgo and Fritz[11] cited a case with successful treatment in a girl, aged 19.

In the French literature, Weil and Loiseleur[12] reported six cases of tuberculous peritonitis in which treatment was carried out by paracentesis and injection of air (in two, also nitrogen was injected), in three of which complete cure was effected.

In the English literature, Rost[13] first reported eight cases of tuberculosis treated by inflation with oxygen. Of these, only one showed peritonitis (four were cases of psoas abscess, and three were joint infections) which was well advanced in character, with matting of the intestines, and large masses of tuberculous material in the mesentery. Rost, however, had performed a laparotomy previous to the oxygen inflation. The following year he reported three additional cases in which treatment was successful, but again in two of them a laparotomy had been previously undertaken.[14]

In the American literature, Stein[15] was the first to lay stress on the conservative treatment of the exudative form of tuberculous peritonitis by paracentesis, with evacuation of fluid and subsequent oxygen insufflation. He reported several very striking results.

1. Zinsser: Text Book of Bacteriology, ed. 1, p. 423.
2. Ochsner, A. J., and Percy, N. M.: Manual of Surgery, ed. 5, 1917, pp. 286-290.
3. Allbutt, O., and Rolleston, H. D.: System of Medicine 3: 957-978, 1908.
4. Mosetig-Moorhof: Wien. med. Presse, 1893, p. 1.
5. Nolen: Berl. klin. Wchnschr., 1893, p. 813.
6. Biedert-Fischl: Lehrbuch für Kinderkrankheiten, 1902, p. 342.
7. Jakobaeus: Ueber Laparo- und Thorakoskopie, 1913, pp. 67-73.
8. Schmidt: Diagnostik und Therapeutik Irrtumer 6: 64, 1919.
9. Koestle: München. med. Wchnschr., 1920, p. 714.
10. David, O.: München. med. Wchnschr. 67: 907 (July 30) 1920.
11. Sorgo and Fritz: Med. Klin. 17: 1513 (Dec. 11) 1921.
12. Emile-Weil, P. E., and Loiseleur, J.: Bull. et mém. Soc. méd. d. hôp. de Paris 45: 1661 (Dec. 16) 1921.
13. Rost, E. R.: Indian M. Gaz. 55: 329 (Sept.) 1920.
14. Rost, E. R.: Brit. M. J. 2: 978 (Dec. 10) 1921.
15. Stein, Arthur: Oxygen Inflations of Peritoneal Cavity in Tuberculous Exudative Peritonitis, J. A. M. A. 78: 718 (March 11) 1922.

McGlinn [16] had employed oxygen in the treatment of tuberculous peritonitis, but introduced it through an abdominal incision. Bainbridge [17] also mentioned intra-abdominal oxygen administration as favorably influencing certain types of tuberculous peritonitis. In an article following that of Stein, Mattick [18] reported an apparently complete recovery in a patient with a tuberculous ascites of three months' standing. Gilbert [19] reported two similar beneficial effects from the use of filtered air instead of oxygen. Carroll Smith [20] recently described a case in which laparotomy was performed without any result, and in which improvement was noted only after oxygen injections were used.

CONCLUSION

The treatment of that form of tuberculous peritonitis which is associated with ascites, by abdominal puncture, followed by insufflation with oxygen, is a well recognized and beneficial form of therapy. It should be undertaken in preference to the usually advised laparotomy. The apparent cure in the case here reported is a striking instance of this.

113 East Eighty-First Street.

PYELITIS IN THE FEMALE *

J. M. HUNDLEY, JR., M.D.
BALTIMORE

Pyelitis is an inflammation of the mucous membrane of the pelvis and calices of the kidney, whereas with pyelonephritis the process is more advanced; in addition to the changes in the pelvis and calices there is an infection of the parenchyma. Acute pyelitis as a distinct pathologic entity is not common, for it is usually associated with varying degrees of pyelonephritis. Pyelitis is usually secondary to infection in the parenchyma and in many cases this infection in the parenchyma clears up, leaving the pelvis and calices of the kidney involved. The differential diagnosis between simple pyelitis and pyelonephritis is impossible without the use of functional tests. Of course, in simple pyelitis there is no decrease in function, for the parenchyma is not involved, whereas in pyelonephritis there is a reduction in the output of dye. In cases in which the infection in the parenchyma has cleared up and with a resulting pyelitis existing, the function is decreased.

ETIOLOGY

In 140 cases of pyelitis collected by Kidd [1] of London, 117 were due to the colon bacillus; nine were due to the streptococcus, and in two instances the streptococcus was associated with the colon bacillus; seven were due to the staphylococcus; two to the gonococcus; one to *Proteus vulgaris;* one to the paratyphoid bacillus; one to *Bacillus asiaticus;* one to paramalta fever, and in nine cases no organisms could be isolated.

Gonococcal infections of the kidney are quite uncommon, only twenty-five cases having been reported up to the present time.

It is commonly believed that the colon bacillus is the chief cause of pyelitis and pyelonephritis in the majority of cases. Bumpus and Meisser [2] believe that the streptococcus is the infecting organism and that the colon bacillus is a secondary invader, which outgrows and usurps the entire field. They also believe that the teeth and tonsils may harbor these streptococci, which have a selective action on the urinary tract.

Eighty-two rabbits were injected intravenously with cultures of green producing streptococci and staphylococci which had been obtained from the teeth, tonsils, blood and urine of patients showing pyelonephritis and pyelitis. Sixty-three of the rabbits that were injected showed lesions of the kidney. Bumpus and Meisser also showed that it was impossible to obtain kidney lesions by the intravenous injections of the cultures of *Bacillus coli* obtained from the urine of patients suffering with pyelitis. However, Helmholz [3] showed experimentally in rabbits that lesions of the kidney could be caused by the intravenous injection of the colon bacillus and also that a pyelitis could be produced by merely introducing bacteria into the bladder without irritation of the bladder or obstruction to the urinary flow. The pyelitis produced in this manner might be explained by the phenomena of ureteral reflux which Wislocki and O'Conor showed occurred frequently in rabbits.

If Bumpus and Meisser are correct in their assumption that the streptococcus and staphylococcus are the primary invaders and that the colon bacillus is a secondary invader, it would appear that the incidence of streptococcic and staphylococcic pyelitis would be far greater than it is.

PREDISPOSING FACTORS

1. Foci of infection.
   (*a*) Abscesses of teeth, infected tonsils, sinuses, chronic ear diseases.
   (*b*) Gastro-intestinal conditions, such as constipation, diarrhea, fissure and fistula in ano.
   (*c*) Gallbladder disease and appendicitis.
   (*d*) Infections of prostate and seminal vesicles.
2. Conditions that cause a decrease in resistance of the kidney to organisms that may be filtering through it.
   (*a*) Nephritis.
   (*b*) Arteriosclerosis.
   (*c*) Stone in the kidney.
3. Conditions that cause urinary stasis.
   (*a*) Stone in the ureter.
   (*b*) Stricture of the ureter.
   (*c*) Enlarged prostate.
   (*d*) Hydro-ureters due to cancer of the prostate or uterus.
   (*e*) Pregnancy.
4. Conditions that cause decrease of general resistance.
   (*a*) Overexertion.
   (*b*) Exposure to cold wet weather.

ROUTES OF INFECTION

Hematogenous.—According to Sampson,[4] there is an arterial anastomosis between the bladder and the kidney which takes place about the lower pole of the kidney between branches of the renal artery, which supply the capsule of the kidney and the branches of the ovarian artery. The ovarian artery then anastomoses with the uterine and that with the vesical artery. Embleton and Thiele [5] have shown in the following manner that infections of the kidney occur by way of the blood

16. McGlinn: New York M. J. **88**: 359, 1908.
17. Bainbridge: Am. J. Surg. **27**: 364, 1913.
18. Mattick, W. L.: Am. Rev. Tuberc. **8**: 473 (Jan.) 1924.
19. Gilbert, O. M.: Am. Rev. Tuberc. **8**: 479 (Jan.) 1924.
20. Smith, Carroll: Oxygen Injections in Treatment of Tuberculous Peritonitis, J. A. M. A. **84**: 1491-1492 (May 16) 1925.

* From the Department of Gynecology, University Hospital, University of Maryland.

1. Kidd, Frank: Common Infections of the Kidney, New York, Oxford University Press, 1920.
2. Bumpus, H. C., and Meisser, J. G.: Focal Infection and Selective Localization of Streptococci in Pyelonephritis, Arch. Int. Med. **27**: 326 (March) 1921.
3. Helmholz, H. F.: J. Urol. **8**: 301-306 (Oct.) 1922.
4. Sampson: Bull. Johns Hopkins Hosp. **14**, 1903.
5. Embleton and Thiele: Proc. Roy. Med. Soc. London **7**: 69, 1913.

stream and that infection by way of the lymphatics is uncommon: Experimenting on animals, they placed bacteria on the urethral mucosa and proved that they then passed into the lymphatics of the wall of the bladder and ureter and collected beneath the capsule of the kidney. They did not then pass into the kidney or enter the urine, but passed rapidly into the lumbar glands and thoracic duct and then into the blood stream. Embleton and Thiele also found that, after intraperitoneal inoculation, organisms appeared in the urine in from ten to thirty minutes. If the thoracic duct was cut they did not reach the kidney or urine, thus proving that the organisms reaching the kidney were blood borne.

The reason we do not obtain the organisms in the blood more often than we do is that the cultures are not made at the proper time. P. M. Patton of the clinical laboratory in London believes that the organisms occur in the blood stream only just before a rigor. He reports three cases, in two of which the blood was taken during the chill and in the remaining one the culture was done a few hours after the chill, the colon bacillus being obtained in all these cultures. Crabtree [6] was able to obtain 40 per cent positive blood cultures in thirty-two cases of pyelonephritis, the colon bacillus being the infecting organism.

Lymphatic.—Several foreign investigators are in favor of the lymphatic route. Sakata [7] and Bauereisen [8] believe that it is anatomically possible for organisms to ascend from the bladder to the kidney by way of the ureteral lymphatics. Lymphatics could not be demonstrated in the mucosa or submucosa but were present in the muscular coats of the ureter. They were found to run parallel with the blood vessels. The blood supply of the ureter is variable as a rule; the abdominal portion is supplied by the renal and ovarian arteries, and the pelvic portion is supplied by the superior vesical and middle hemorrhoidal vessels.

Lever Stewart transplanted the ureters of a dog into the large bowel and showed that infections of the kidney occurred by organisms ascending through the ureteral lymphatic. Franke [9] has demonstrated that lymphatics from the large bowel pass over the capsule of the kidney, and Rindowsky has shown that the kidney has a rich network of lymphatics which emerge at the hilum and that there is a connection between these lymphatics and those of the capsule. Several authors believe that with any gastro-intestinal disturbance, such as constipation or ileocolitis, organisms may very readily pass from the intestines to the kidney by way of the lymphatics. Mayer [10] thinks that the lymphatic connection between the large colon and the kidney occurs only on the right side, and this he believes is the reason for so many right-sided infections. He does not believe that under normal conditions organisms may penetrate the intestinal wall, but with pathologic changes this may be the case.

Ascending.—During the last few years, there has been a great deal written about ascending infection of the kidney and ureteral reflux. According to Sampson, ascending renal infection may occur: (*a*) by injury to the intravesical portion of the ureter; (*b*) by the extension of an inflammatory process from the bladder through the ureteral wall, and (*c*) by ureteral reflux.

6. Cabot, H., and Crabtree, E. G.: Surg., Gynec. & Obst. **23**: 495 (Nov.) 1916.
7. Sakata: Arch. f. Anat. u. Physiol., 1903.
8. Bauereisen, A.: Ztschr. f. Gynäk. u. Urol. **2**: 132, 1910.
9. Franke: Ergebn. d. Chir. u. Orthop. **7**: 671, 1913.
10. Mayer: München. med. Wchnschr., 1913, p. 1479.

EXPERIMENTAL WORK

Wislocki and O'Conor,[11] working on rabbits, found that regurgitation could be readily produced. They made the following experiment:

> Oct. 7, 1919, under ether anesthesia, a number 7 French rubber catheter was inserted into the bladder of a male rabbit; the bladder was then emptied and the urethra tied off in situ. A laparotomy was next performed, and the ureters were exposed under warm salt solution. Peristaltic waves could be seen traveling at regular intervals down the ureter, averaging from one to two a minute, with a speed, approximately, of from 30 to 40 mm. a second. A syringe with a capacity of 20 cc. was meanwhile filled with warm saline solution stained with methylene blue. The syringe was then attached to the catheter, and the methylene blue solution gradually injected into the bladder, so that it became moderately distended. While the ureters were under observation, a column of blue fluid suddenly filled the lumen of the right ureter. A peristaltic wave, which had already left the renal pelvis, met the ascending column in the upper half of the ureter and impeded its progress. Fresh peristaltic waves began above, becoming more frequent and vigorous, and a struggle ensued for control of the ureter. The column of fluid advanced toward the kidney and receded again with each peristaltic wave. Gradually the peristaltic waves expelled the methylene blue from the ureter, and the uterovesical orifice closed. This phenomenon repeated itself in a few minutes on the same side and also in the left ureter. Occasionally, the ureters were unable to expel the invading fluid.

It is quite evident that urine may ascend the ureters when there is damage to the ureterovesical orifices and they are not functioning properly. If ureteral reflux does occur, the finding of a unilateral renal infection would be unusual, for would not the organisms from the infected side quickly ascend the sound ureter and kidney and set up an inflammatory process? In 1916, Kretschmer published a series of cystograms showing this phenomena of ureteral reflux. Quinby,[12] in 1922, reported several cases of ureteral reflux in which he distended the bladder with sodium bromid and then under the fluoroscope watched the bromid solution ascend the ureter. Wislocki and O'Conor believe that further investigation is necessary before it is proved that similar phenomena occur in man, and they think that "far more skepticism should prevail concerning the possibility of the conveyance of organisms up the ureter and the retrograde movements of ureteral calculi by antiperistaltic contractions."

Sampson has shown that it is impossible to force fluid from the bladder into the ureter; that is, when the structures are normal. He removed a bladder at necropsy, cut off both ureters near the bladder, and then distended the bladder with fluid. No fluid escaped from the severed ureters. It has been found that ureteral reflux occurs much less frequently in dogs than in rabbits, so that deductions drawn from experiments on rabbits could not be applied to dogs. In view of this fact it would not be justifiable to conclude that this phenomenon occurred in man from experiments on rabbits.

ACUTE AND CHRONIC PYELITIS IN ADULTS

The acute type is not often seen by the urologist, for many of these conditions are self limiting. It is for this reason that I believe that patients with an acute infection should be first treated medically and then, if the infection persists, kidney lavage should be carried out. The attack usually begins with a sudden

11. Wislocki, G. B., and O'Conor, V. J.: Bull. Johns Hopkins Hosp. **31**: 197 (June) 1920.
12. Quinby, W. W.: New York M. J. **115**: 520 (May 3) 1922.

pain in a kidney, which either remains localized or radiates down the thigh. There is an elevation of temperature, which is in many cases associated with chills and sweats. The most common symptoms are frequent urination and dysuria.

A short time ago a patient consulted me with regard to an acute pain in the right kidney, which came on after exposure to cold and wet weather. There was a history of high fever, chills, sweats, frequency and dysuria. On examination, no foci of infection could be made out; the tonsils had been removed and the teeth were in good condition. The right kidney was moderately enlarged and tender. The urine was loaded with white blood cells, and on culture a colon bacillus was found. Cystoscopy was not done but the patient was advised to drink large quantities of water. One week after the onset of the illness, the pain had disappeared and five weeks later the urine was sterile and free of pus.

The chronic type of pyelitis is the one that is most frequently seen, and it is in this type of infection that so much can be done by renal lavage and drainage. The symptoms are most variable; pain which is usually dully aching in character may be localized in the kidney regions, down the course of the ureter, down the thigh, in the perineum, or there may be only colicky pains over the entire abdomen. In this type of infection the temperature is only moderately elevated and the constitutional symptoms are not marked, although at times there may be exacerbations with high fever and intense pain.

I have always been impressed by the fact that patients with pyelitis do not appear very ill, although there may be every evidence of an intense infection. In twenty-five cases of chronic pyelitis that I have reviewed, the duration of the infection was from three months to fourteen years. The majority of these patients sought medical advice on account of an acute flare-up of chronic infection. Cystoscopic examination showed pathologic changes in the bladder in 60 per cent. of the cases. The most common lesion was redness around the affected orifices, and edema and swelling of the trigon. There were varying degrees of cystitis, which ranged from a small area of hyperemia to an intense, widespread involvement of the mucosa. All the patients gave a history of frequency and dysuria. All but six had had chills and sweats, and five had had hematuria. Twelve patients gave a history of nausea and attacks of vomiting, while only two complained of nausea. In the bacteriologic examination of the urine, *Bacillus coli* was obtained in nineteen cases. A staphylococcus was found in two, and a staphylococcus and colon bacillus were found in one. In two cases the cultures were negative and in one no bacteriologic examination was made. The average white blood count was around 13,000. A blood chemistry test and a phenolsulphonephthalein test were made on a number of patients, all of which proved to be normal, thus showing that there was little destruction in the kidney parenchyma. In a number of cases, pyelography was of great assistance in making the diagnosis between a pyelitis and a pyonephrosis.

PYELITIS WITH PREGNANCY

Another type of pyelitis, which is of much interest, is that associated with pregnancy. Many observers, notably Mayer, believe that pregnancy is not the cause of pyelitis but is a predisposing factor, and they are of the opinion that it is the lighting up of an old latent infection. It has been definitely shown that the main factor in the production of renal infection is urinary stasis. In this type of pyelitis there is definite urinary stasis, which is shown by the frequency of hydronephrosis, which occurred eighteen times in my series of twenty-one cases. Hirsch in Munich performed necropsies on 300 patients who had died during pregnancy or during the puerperium. Dilated ureters and kidneys were found in ninety-six cases. Pollack reports having found thirty-five cases of dilated ureters in 130 necropsies on pregnant women. W. J. Carson, associate pathologist of the University of Maryland, has given me the necropsy reports of three women dying during pregnancy, one of them being at six months gestation and the other two at full term. The first case showed a right hydro-ureter, the kidney pelvis being normal in size. The second case showed a bilateral hydro-ureter and no hydronephrosis. The third case showed a right hydro-ureter and hydronephrosis. In all three cases, sections of the ureteral wall were studied and no evidence of a stricture could be made out, but there was a round cell infiltration of the wall with localized desquamation of the mucosa.

There are many theories advanced to account for the dilated ureter and pelvis. Some observers believe that urinary stasis is produced by the pressure of the enlarging uterus or the contained fetus against the ureter at the point where the ureter crosses the pelvic brim. In support of this theory we can all recall that when patients with high fever were placed in the knee-chest position, thus allowing the uterus to fall away from the ureter and free drainage to be established, the acute symptoms would subside and the temperature would return to normal. Infrequently pyelitis occurs in the first or second month of pregnancy; then, of course, the stasis could not be brought about by the impinging of the uterus against the ureter at the brim of the pelvis, for the pregnancy would have to be at least of four months' duration before this could be possible. Other observers believe that the stasis is produced by the downward displacement of the bladder, as the uterus enlarges with subsequent narrowing or kinking of the ureter at the brim of the pelvis. Mirabeau [13] believes that the swelling and edema of the bladder cause obstruction in the ureter as it passes through the bladder wall. I do not believe that this theory is tenable, for the pyelograms that I have made show that the hydro-ureters begin at the brim of the pelvis and that the portion of the ureter from this point down to the bladder is of normal size.

Hunner believes that the commonest cause of all pyelitis is a stricture of the ureter, which is often multiple and in many cases is bilateral. He has shown that the ureter undergoes a definite inflammatory reaction, with a resulting narrowing of the diameter of the lumen. He has also shown that the causative factor in the production of strictures is foci of infection, which often have to be removed before the infection of the kidney will clear up. Carson, at the University Hospital, has examined, as a routine, the ureters for strictures and kidneys for hydronephroses in patients dying from all causes during the last three years. He has found hydro-ureters which were caused by pressure of fibroid uteri and by enlarged retroperitoneal glands of Hodgkin's disease. One of his cases showed a left chronic periureteritis with hydronephrosis, which was thought to be due to an adherent pyosalpinx. One necropsy showed bilateral ureteral strictures due to

13. Mirabeau: Zentralbl. f. Gynäk., 1910, p. 1635.

periureteritis extending upward 6 cm. from the bladder. There was also a marked cystitis present, and it was thought that the inflammation in the ureter was an extension of the infection from the bladder. The lumen of the strictured ureter measured 1 mm. in diameter, and there was a bilateral hydronephrosis of 30 cc. Another case showed a dense stricture of the left ureter located 15 cm. from the bladder. There was a nearly complete obliteration of the lumen, with a hydro-ureter and a hydronephrosis. The kidney and ureter showed no evidence of tuberculosis. In another case, bilateral hydro-ureters were found which were caused by adhesions following a hysterectomy. Carson will make a complete report of his necropsy findings in the near future.

In eight cases of pyelitis with pregnancy, catheters with 4 mm. wax bulbs were passed up the ureter of the affected side. Four of these patients showed a definite "hang" at the brim of the pelvis when the catheter was withdrawn. Hydronephroses were found which contained as much as 75 cc. of fluid. On two of these patients who showed definite "hangs" at the brim of the pelvis and hydronephroses, cystoscopy was again done about two months after the birth of the babies. The same technic was carried out as in the first cystoscopy, 4 mm. bulbs again being used. On withdrawal of the catheter, there was no "hang" made out and the pelvic capacity had returned to normal. The constricted ureter and hydronephrosis is well shown in figure 1, and the decrease of pelvic capacity is shown in figure 2. I believe that the urinary stasis in these two cases was undoubtedly due to the pressure of the enlarged uterus and the contained fetus. The pregnancies were of four and six months' duration.

ANALYSIS OF CASES

The symptoms in this type of pyelitis are very similar to those occurring in cases of acute pyelitis, with the addition of the frequent complaint of crampy pains in the lower part of the abdomen which simulate labor pains. The patients in this group are often very sick and give every evidence of an intense infection.

I recall a negro girl, aged 18, admitted to the hospital in a very serious condition, who three weeks before admission was taken with chills, fever, nausea and vomiting. There was a slight dysuria and some frequency of urination. A few days before admission to the hospital, the patient began to develop intense jaundice. She was six months pregnant and markedly jaundiced. The temperature was 104; the pulse, 130, and respirations were 24. The head findings were negative; the conjunctivae were jaundiced. The teeth were in fair condition, and the tonsils were not enlarged. The heart and lungs were normal.

It was thought by the medical consultant that there was a definite atrophy of the liver. There was moderate tenderness over the entire abdomen, which was more intense in the lumbar region and moderate rigidity over the kidneys, which was more marked on the left side. The lower part of the abdomen was prominent from the pubis to the umbilicus, and on palpation an ovoid tumor was felt arising out of the pelvis, which extended up to the umbilicus. Pelvic examination showed that the tumor in the lower abdomen was a pregnant uterus.

Examination of the catheterized bladder urine revealed acidity, albumin +, and no sugar, blood or bile. The urine was cloudy, with specific gravity 1.030; microscopic examination revealed white blood cells, ++, in clumps; red blood cells, a few. Microscopic examination of the blood revealed: red blood cells, 2,240,000; white blood cells, 35,000; differential count: polymorphonuclears, 79 per cent; small mononuclears, 9 per cent; large mononuclears, 3 per cent; myelocytes, 9 per cent. Blood cultures, as well as the blood and spinal Wassermann tests were negative.

The blood chemistry findings were normal.

The impression of the internist was that the patient had an acute yellow atrophy of the liver, although the urine showed no leucin or tyrosin crystals, which are pathognomonic of this condition.

In view of the fact that the patient had chills, very high fever, and a moderate tenderness in the kidney regions with some frequency and dysuria, and the urine showed a fair number of white blood cells, which were in clumps, I made a diagnosis of pyelitis with pregnancy. The catheterized kidney urine showed a bilateral pyelitis due to a colon bacillus. With kidney lavage and drainage, the signs and symptoms of the infection quickly cleared up, although the urine was not rendered sterile and pus free until after the birth of the child, three months later.

In this series of twenty-one cases, the time of occurrence was variable. There was one case at three months, four at four months, five at five months, four at seven months, two at eight months, two at six months, and three cases during the puerperium.

The infecting organism was found to be the colon bacillus in seventeen cases, staphylococcus in two cases, and there was no bacteriologic report in two instances. It is often stated by many observers that right sided pyelitis is the more frequent, but my findings do not agree with this. There were twelve patients with a bilateral infection, six with a right sided infection and three with a left sided infection.

PYELITIS IN CHILDREN

Another type of pyelitis of great interest is that occurring in infants and young children. This type of infection is usually seen by the pediatrician and rarely by the urologist, for the condition in most cases is self limiting and may disappear as rapidly as it appears. E. Rhonheimer of Basel made a study of 122 cases of pyelitis occurring in infancy. He wished to find out whether the condition was self limiting and whether there was complete healing. He examined the urines over a period of from one to eight years following the attack and found them normal. He found that this complete healing in infants is in marked contrast with the behavior of pyelitis in older children, which is characterized by frequent recurrences. In the 122 cases studied, 77 per cent of the infections were in girls and 23 per cent in boys. According to Helmholz, with the exception of common colds and gastro-intestinal upsets, the most common acute disease occurring in girls under 2 years is pyelitis. The most characteristic finding in reviewing these ten cases was the absence of local symptoms and the presence of general symptoms. The common symptoms are very high fever, chills, loss of appetite, irritability and vomiting. There may be frequency and dysuria. According to Helmholz there are two forms of pyelitis, a primary type, which is characterized by an acute onset in a healthy breast fed baby, and a secondary type in which the pyelitis develops during a gastro-intestinal disturbance or after a respiratory infection. Any kind of local infection may set up a pyelitis. In eight of the ten children whose cases I have reviewed, the infection cleared up under medicinal treatment, but in the remaining two it was necessary to carry out ureteral drainage and lavage before a cure could be brought about. One of the children, aged 10 years, who had been treated for typhoid fever over a period of six weeks, had a septic fever, rapid pulse, nausea and loss of appetite, but no urinary symptoms. On catheteri-

zation, clumped white blood corpuscles and colon bacilli were obtained from the left kidney. All the symptoms disappeared and the urine became sterile with two renal lavages. The other child, aged 20 months, had had pus in the urine with periods of septic temperature, chills and loss of appetite over a period of one year. After the child had spent four months in the hospital on medicinal treatment with no improvement, kidney lavage was carried out with great success. A bilateral colon infection was found. After four treatments, all the symptoms had disappeared and the urine was sterile.

It is interesting to speculate why pyelitis is more frequent in girl babies than in boy babies. Several years ago many observers were of the opinion that, owing to the short female urethra, organisms could enter the bladder and a pyelitis was then produced by an ascending infection. At present it is generally agreed that the organisms that produce pyelitis are blood borne. It is a well known fact that any gastro-intestinal upset, especially diarrhea, may be the predisposing factor in the production of a pyelitis, and according to Kelly and Burnham the regulation of the bowels is more important than treatment of the urinary tract. With the frequent irritating stools, the perineum becomes quite irritated and there are many small atria formed through which the organisms may enter the lymphatics and blood stream. The mucous membrane of the vulva and vagina offers a much better absorptive surface for the entrance of organisms than does the skin of the male perineum. Matrimonial or defloration pyelitis, which is thought to be due to the entrance of organisms through the lacerated hymen, would lend support to my views as to the cause of the prevalence of pyelitis in girl babies.

Fig. 1.—Typical constricted ureter and hydronephrosis in pyelitis associated with pregnancy.

TREATMENT

The general practitioner, who is particularly interested in the medicinal form of treatment, will see and treat many more cases of pyelitis than the urologist. There are two main methods of treatment: first, the medicinal and, second, renal lavage and drainage.

Medicinal treatment is usually used in the early and acute types of the infection and in the majority of cases with success. Thompson of Edinburgh was the first to advocate the alkalization of the urine, and this method of treatment is still popular. I have noticed that with alkalization the symptoms will often subside although the urine still contains many white blood cells and organisms. Helmholz [14] has endeavored to determine whether alkalization merely tends to increase the urinary output, or whether it has some specific action. He has found that the colon bacillus will grow as luxuriantly in markedly alkaline mediums as it will in markedly acid mediums. In order to determine whether the changing of the reaction of the urine from acid to alkaline and vice versa had any inhibitory action on the growth of the organisms, he studied the rapidity of growth of the colon bacillus when grown in acid broth and transplanted to alkaline mediums and vice versa. It was found that there was a slight bacterial lag when the organisms were transferred from alkaline to acid mediums, but there was no change when transferred from acid to alkaline. Most observers think that methenamine at the kidney level is of no value, but in the bladder, the urine, if acid, may be rendered sterile in a short time. Alkalization is the favorite method of treatment, but, as Helmholz has shown, it has no specific action, although it may have slight diuretic effect. It is generally agreed that the drinking of large quantities of water, from 3 to 4 quarts (3.4 to 4.5 liters) a day, is of the greatest value. It is thought that this mechanical flushing of the kidney is of much more value than rendering the urine acid or alkaline. Even though alkalis have no specific action, I continue to use them, for by their use a larger quantity of water will be consumed and the patient feels much better if he is taking some form of medicine.

It is of importance to determine the type of organism that is producing the infection, for if it is due to a streptococcus or a staphylococcus it can be quickly cleared up by the oral administration of hexylresorcinol. According to Leonard,[15] "a recurrence even after all treatment has been discontinued for several months has yet to be observed." Unfortunately, the infections due to the colon bacillus are very resistant to this drug, and unless the bacterial count is low the infection will not clear up. Leonard says that "heavy infections of the urinary tract with *B. coli* cannot be cleared up with hexylresorcinol without a temporary reduction in the number of organisms present by some other means, such as the usual local treatment, which would afford this substance an opportunity to complete the disinfection."

My experience with hexylresorcinol has been limited to three patients, the pyelitis in one being due to the colon bacillus and in the remaining two to the staphylo-

14. Helmholz, H. F.: Drug Therapy in Pyelitis, J. A. M. A. **79**: 285 (July 22) 1922.

15. Leonard, Veador: Secretion of Bactericidal Urine and Disinfection of Urinary Tract Following Oral Administration of Certain Alkyl Derivatives of Resorcinol, J. A. M. A. **83**: 2005-2012 (Dec. 20) 1924; J. Urol. **12**: 585-610 (Dec.) 1924.

coccus. The patient with the colon infection had had chronic symptoms with several acute exacerbations over a period of several years. Pelvic lavage with a 1 per cent silver nitrate solution was carried out on two occasions, and the symptoms were somewhat relieved but the urine was not rendered sterile. The patient was then given four capsules of hexylresorcinol after each meal, the amount of water being decreased so that the concentration of the drug in the urine would be increased. No alkalis were given. This treatment was carried out for six weeks, with complete relief of symptoms; however, the cultures were still positive but the number of colonies had greatly decreased. It is most likely that this infection had involved the kidney parenchyma, for it is quite unusual to have a simple pyelitis existing over a long period

Fig. 2.—Decrease of pelvic capacity following birth of child.

of time. One of the patients with a staphylococcus pyelitis was seen during the first attack and was given one renal lavage with 1 per cent solution of silver nitrate. She was then given three capsules of hexylresorcinol after each meal for five weeks. Kidney cultures were taken every week, and on the third week the urine was sterile and remained so.

The third patient, who had had her right kidney removed several years before, developed a staphylococcus infection of the bladder and the remaining kidney. She received no treatment other than hexylresorcinol, four capsules being given after each meal for six weeks. In a few days after the treatment was begun the symptoms had disappeared, but the urine did not become sterile until several infected teeth had been extracted and a bad pyorrhea had been cleared up. This case illustrates the importance of removing the focus of infection before a cure can be obtained.

According to Leonard, if the first few doses are associated with continued diarrhea, the dose should be reduced. None of my patients complained of this cathartic action.

After medicinal treatment has been tried with no avail, then catheter drainage and renal lavage must be considered. Some men believe that drainage is of more importance than lavage, whereas I myself feel that a combination of the two is the ideal method. In cases in which sterilization is not accomplished in a few treatments, I allow the catheter to remain in the ureter from two to eight hours, and once every hour 1 cc. of silver nitrate solution, from 0.5 to 1 per cent, is injected into the kidney. To some this may seem rather drastic, but in several obstinate cases which I have treated in this way the result was most gratifying. Hunner, in his ureteral stricture work, has always laid great stress on the fact that good drainage is of paramount importance and until this is established the infection will not clear up. This point was well brought out in a case of pyelitis with pregnancy which did not respond to kidney lavage until the ureter had been well dilated by the use of a wax bulb.

Stoeckel was the first to show that this method of treatment was valuable in toxic cases of pyelitis with pregnancy and that by its use the pregnancy could be allowed to continue. Several years ago with this type of infection the pregnancy was always terminated.

Renal lavage has been carried out with many different solutions; the ones most used are flavine and brilliant green, gentian violet, aluminum acetate, mercurochrome-220 soluble and silver nitrate, the last two being by far the most popular. O'Conor in his experimental work on dogs has shown that by injecting silver nitrate solutions, from 0.5 to 1 per cent, the mucosa of the ureter and pelvis undergoes corrosion with some destruction and associated with this there is a round cell infiltration in the submucosa. Regeneration takes place in about ten days. Cabot and Crabtree have been shown that in pyelonephritis the organisms are located in the submucosa of the epithelial lining of the pelvis and pyramidal tips. O'Conor[16] next carried out a series of experiments, using a 1 per cent solution of mercurochrome-220 soluble. He found that the dye penetrates the tissues deeply but causes no round cell reaction in the mucosa or submucosa. There was no loss of surface epithelium. If we are to cure the infection, we must use a drug that causes marked reaction with an outpouring of cells to combat the invading organism, and that is what silver nitrate does. Mercurochrome is more penetrating but causes no cellular reaction. In my work I use a solution of silver nitrate, from 1 to 2 per cent. Geraghty[17] advocated beginning with a 1 per cent solution and running up to 5 per cent, first being sure that the kidney could empty itself, for if the fluid became trapped, serious damage could be done.

In addition to this local treatment, it is of great importance to see that there are no foci of infection. In several of my cases the infection has cleared up promptly after the removal of abscessed teeth and diseased tonsils.

The number of treatments in my series varied from one to ten. In the group of adults with chronic infection, which numbered twenty-five, twelve were cured; that is, the urine was sterile and free from pus. The

16. O'Conor, V. J.: Lavage of Renal Pelvis, An Experimental Study, J. A. M. A. **77**: 1088 (Oct. 1) 1921.
17. Geraghty, J. T.: The Treatment of Chronic Pyelitis, J. A. M. A. **63**: 2211 (Dec. 19) 1914.

remaining patients were greatly improved, so much so that they would not return for further treatment. The group of patients with pyelitis associated with pregnancy, numbering twenty-one, were all carried successfully to term, with the exception of one in whom labor was brought about at the seventh month. Of the ten children reviewed, eight were cured with medicinal treatment, whereas the remaining two were treated with renal lavage and were cured.

840 Park Avenue.

TRICHINOSIS

REPORT OF FOUR CASES, WITH RECOVERY, OCCURRING IN THE UNIVERSITY OF MICHIGAN STUDENT HEALTH SERVICE

WILLIAM L. BETTISON, M.D.
Instructor, Department of Internal Medicine, University of Michigan Medical School
ANN ARBOR, MICH.

The cases of trichinosis reported here afford an unusual opportunity for study, not only from the clinical aspect of the disease, but more especially from the early pathologic invasion of the tissue to the development of the encysted forms. The accompanying photomicrographs serve to bring out this point more clearly. The cases are also interesting, because those having the disease were not, with the exception of one, seriously ill. Trichinosis has been classed in the textbooks, as well as in the current literature, among the rarer diseases, but the belief is becoming more and more prevalent that it is not so uncommon, for there are a large number of cases that have been observed and the diagnosis never made. It is not an uncommon occurrence for the pathologist to find trichinae in pieces of muscle tissue contained in pathologic specimens.

The case reports here given are those of four university students who attended the Illinois-Michigan football game at Champaign, Ill., Oct. 18, 1924. They had their noon meal in the same restaurant and ate pork that was insufficiently cooked. One of the students remarked at the time that the pork, which was roasted, was rare. Although many Michigan students and supporters ate at the same restaurant, these four were the only ones coming to our attention who developed trichinosis. It is logical to assume that many others probably were infected with the parasite, but were so mildly affected that their condition either was not recognized or did not come to the attention of a physician. Because of this fact, it might be well to review a few of the most important features concerning the disease.

SOURCE OF INFECTION, OR ETIOLOGY

The usual method of infection in man is by eating pork containing trichina; the hogs become infected from eating swill that contains the bodies of infected rats. The rats become infected from eating one another and from eating scraps of infected pork; thus the endless chain of infection.[1] The rats (and dogs) are important sources of infection, as far as man is concerned, in countries in which they are used for food.[2] The infection in man is regarded as more or less accidental, the lower animals being the normal hosts for trichina.[1]

The close relationship between the spread of the disease, its symptoms and signs and the life history of the parasite makes it necessary to bear in mind the three stages through which the worm passes. The encysted larva is the infecting stage, found in the uncooked or poorly cooked pork. When eaten, the cysts are destroyed by the digestive juices, and in two or three days the adult worm develops; the male impregnates the female and then dies. In from six to ten days, the embryos are discharged from the uterus of the female worm into the lumen of the intestine or into the lymphatics of the intestinal wall. These embryos wander with lymph or blood to the various parts of the body, the majority reaching the striated muscle and there developing into encysted larvae.

SYMPTOMATOLOGY

Blumer states that occasionally, following the consumption of infected pork, there is an acute gastroenteritis, which is due to the production of ptomains in the partly decomposed pork.

The first week of ingestion of the infected pork is the period of invasion or ingression, and during this period the worms are developing in the intestine. There

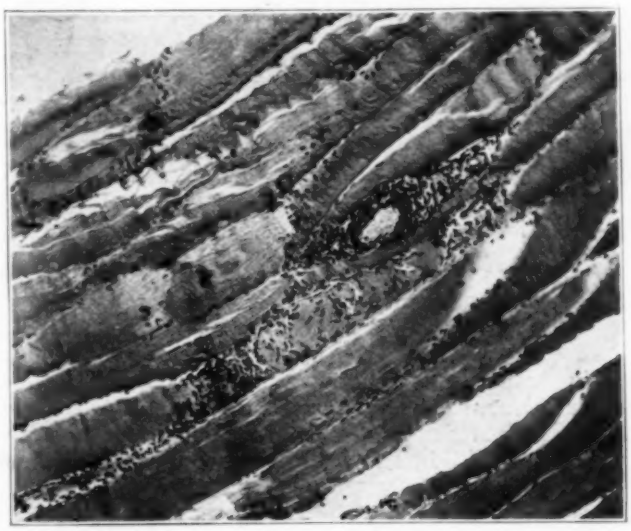

Fig. 1.—Very early stage, showing perivascular infiltration and necrosing muscle fiber, thirty-four days after infection. This and the accompanying illustrations by courtesy of Dr. Aldred Scott Warthin.

may be loss of appetite, nausea, vomiting, periodic pains in the abdomen and diarrhea. Toward the end of this period, the first edema of the eyelids and face appear, and, from then on, embryos may be found in all the serous cavities.[1]

The second period is the stage of dissemination or digression and begins between the ninth and the fifteenth day. It is in this period that the muscle soreness (myositis) begins; it being due to the embryos attacking the muscles, after leaving the intestinal wall. Muscular tenderness occurs over the whole body, especially the biceps and the gastrocnemius; mastication is painful and even lateral movement of the eyes causes discomfort; subconjunctival and subcorneal hemorrhages are occasionally encountered. Pulmonary symptoms are common during this period and may be so severe that attention is drawn from the true disease.[2]

The third period is known as the period of encystment or regression and lasts from the time the larval parasite begins to encyst until the patient recovers. All symptoms are increased in severity; edema of the eyelids and face is present in the majority of cases. Cachexia is a striking feature and may be extreme.

1. Osler, William: Principles and Practice of Medicine.
2. Nelson's Loose Leaf Medicine.

Profuse sweating occurs rather frequently. Fever occurs in even the moderate cases; in severe cases the temperature rises as high as 104 or 105 F. and lasts from two to six weeks, being intermittent or remittent in character. The pulse is correspondingly high.

PATHOLOGY

The intestinal mucosa is swollen and congested, and occasionally areas of erosion or necrosis of the epithelium are present; there is no local eosinophilia.[3] The liver may show parenchymatous changes and fatty degeneration, as may also the kidneys and heart muscle. The spleen and lungs are not infrequently congested, and bronchopneumonia is not uncommon.

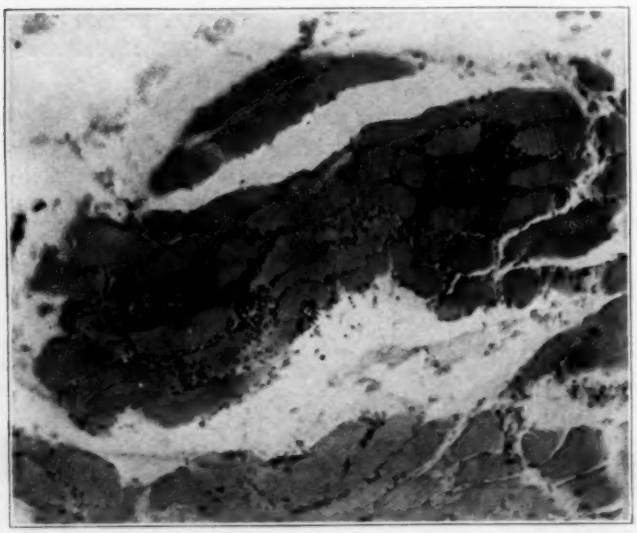

Fig. 2.—Early stage of muscle invasion: rather marked infiltration; twenty-eight days after infection.

The lesions, when the embryos are being destroyed in the various parts of the body, take the form of hemorrhagic areas with infiltration of eosinophilic cells, endothelial cells and polymorphonuclear leukocytes. In the muscles in which the embryo is permanently lodged, the inflammatory tissue gradually organizes into connective tissue, and this acts as a capsule for the worm. At the poles of the cysts, groups of fat cells may appear; later calcification of the cysts may occur.

LABORATORY TESTS

If the disease is suspected early and diarrhea is severe, the male worms may be found in the stools. This examination is really unsatisfactory. The embryos are present in the circulating blood during the second stage. Salzer[4] found the embryos in the blood in nine out of fourteen cases. Embryos have also been found in the cerebrospinal fluid, Lintz[5] finding them first in 1914. Cummins and Carson[6] found definite changes in the spinal fluid pressure in their cases, but found the embryos in only one out of twelve.

Usually there are no characteristic changes in the urine, it being concentrated, highly colored, and containing a little albumin and a few hyaline casts. The diazo reaction is a rather constant feature.

The blood shows an eosinophilia, ranging from 15 to 60 per cent., and even as high as 80 per cent. There is a leukocytosis, which varies from 15,000 to 30,000. The eosinophilia varies from day to day and from week to week and may continue for months. The eosinophilia is not an indication of the severity of the disease, for patients who are affected mildly may have a marked increase in eosinophils.

DIFFERENTIAL DIAGNOSIS

Trichinosis may be mistaken for frontal sinusitis. Trichinosis may also simulate meningitis, but in both these cases the eosinophilia would direct attention to the parasite infection.

Dermatomyositis, or pseudotrichinosis, has characteristics very similar to trichinosis. Here again the chief differential point is the eosinophilia.

The diagnosis of typhoid fever is perhaps the commonest mistake. The leukocytosis with an eosinophilia, negative Widal reaction, and blood, urine and stool cultures negative for *Bacillus typhosus* are the chief differential points.

TREATMENT

Medicinal.—Seymour[7] states that, although there is no known drug that will kill the parasite, an initial purge with castor oil or calomel followed by Epsom salt in doses of one-half to one teaspoonful daily is to be recommended. For an intestinal antiseptic, thymol in 5 grain (0.3 gm.) doses three times a day may be given. The treatment should be supportive in character. The results of treatment with serum, roentgen ray, radium, neo-arsphenamin and arsphenamin have not been encouraging.

Prophylactic.—The cooking of pork thoroughly is the first and safest method toward preventing the occurrence of the disease in man. Ransom and Schwartz[8] found that the trichina larvae are readily destroyed by exposure to a temperature of 55 C. "This temperature may be considered as the thermal death point." They also found that the larvae may recover, when exposed to the same degree of temperature for shorter lengths of time. They concluded, from their investigations, that a temperature of 137 F. (58.3 C.) should be the minimum temperature to which pork

Fig. 3.—Early stage of trichina invasion of muscle fibers: a young larval form, twenty-eight days after infection.

3. Tice's Loose Leaf Medicine.
4. Salzer, B. F.: A Study of an Epidemic of Fourteen Cases of Trichinosis, J. A. M. A. **67**: 579 (Aug. 19) 1916.
5. Lintz, William; and Van Cott, J. M.: Trichinosis, J. A. M. A. **62**: 680 (Feb. 28) 1914.
6. Cummins, W. T., and Carson, G. R.: Trichinosis: A Study of Fifteen Cases, J. A. M. A. **67**: 806 (Sept. 9) 1916.
7. Seymour, Malcolm: Trichinosis in Italians, J. A. M. A. **56**: 1030 (April 8) 1911.
8. Ransom, B. H.: Effects of Heat on Trichinae, J. Agric. Res. **17**: 201 (Aug. 15) 1919.

should be heated, the difference between this temperature and the thermal death point being a reasonable allowance as a margin of safety. Ransom,[9] in an earlier paper, reported his investigations on the effect of heat on trichina. He found that pork, especially pieces that were very large, should be cooked from two and a half to three and a half hours in order that the temperature of the entire piece may be raised to 137 F., which is the point of safety. It is generally known

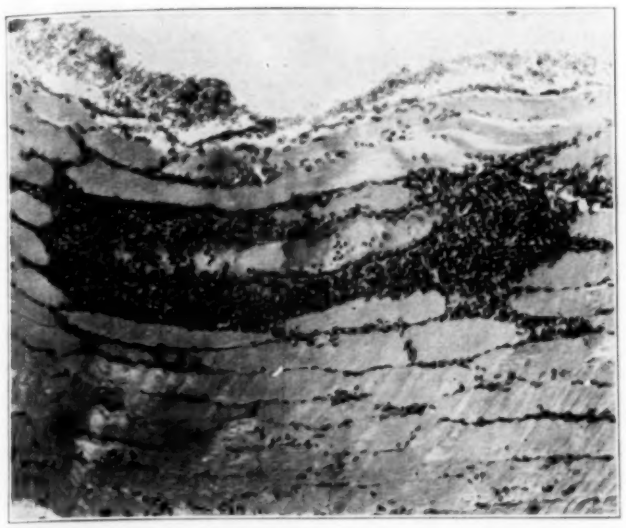

Fig. 4.—Early stage of muscle invasion: very marked infiltration; small larval form in cross section; twenty-eight days after infection.

that smoking as well as salting will kill trichinae in the outer layers of the meat, but it is doubtful whether or not the trichinae in the inner portions are destroyed. The other methods of prophylaxis, such as meat inspection and the like, will not be taken up here.

PROGNOSIS

According to Blumer,[2] the mortality of trichinosis in the United States is about 5 per cent. In Germany, where the outbreaks are more frequent and larger, the mortality is much higher, sometimes reaching as high as 30 per cent. The prognosis depends on several factors, such as the number of parasites ingested, the number of embryos in the intestine, the degree of toxemia and the complications, especially pulmonary. Vance and Rider [10] reported a series of seven cases in the same family, three of the patients dying in sixteen, twenty-two and twenty-three days after the infection. Death apparently was due to the severe toxemia.

REPORT OF CASES

Nov. 5, 1924, two students (A. S. and G. R.) entered the infirmary, with rather marked elevation in temperature, their only complaint being swelling of the eyelids and face. The following day a third student (S. R. S.) was admitted, and on November 11, a fourth one; the latter two had the same complaint as the former.

CASE 1.—A. S., a man, aged 20, complained of swelling of the eyelids and face. This had been ushered in by a chill, which occurred one week previous to entrance. There was constipation, since the onset of the illness. At the time of the examination—about the seventh day of his illness—the temperature was 101 F.; the pulse, 114, and respirations, 20. The face was edematous, especially about the eyes, and the conjunctivae and sclera were edematous and markedly suffused. There was some complaint of soreness, on rapid movement of the eyeballs. A slight difficulty in movement of the neck and jaws was due to soreness of the muscles involved. There was a slight herpetic eruption on the soft palate. The muscles of the extremities were not painful. The tongue protruded normally, but the mouth was opened with slight difficulty. There was a very tender occipital adenitis and a somewhat tender posterior cervical adenitis. On the second day after entrance, the intercostal muscles and diaphragm became involved, as was indicated by the increase in the respiratory rate (from 20 to 38). The remainder of the examination was negative.

TABLE 1.—*Blood Findings in Case 1*

Date	Leukocytes	Polymorphonuclear Neutrophils	Eosinophils	Basophils	Large Lymphocytes	Small Lymphocytes	Mononuclears and Transitionals	
11/ 8/24	22,400	55	30	0	5	6	2	1 E myelocyte
11/11/24	23,000							1 myeloblast
11/21/24	16,000	34	32	0	15	7	3	2 myelocytes
12/ 6/24	12,300	40	39	0	1	19	1	
12/18/24	11,000	54	21	0	0	21	4	

The urine was normal on all occasions. Examination of the blood showed a hemoglobin of 78 per cent.; red blood cells, 4,960,000, and white blood cells, 22,400. The eosinophils at the time of this examination—three days after entrance into the infirmary—was 30 per cent.[11] Table 1 shows the results of the remainder of the blood examinations.

November 15, the patient began to complain of sore throat, which gradually grew worse. There was a rise in temperature and a feeling of malaise. This complication no doubt prolonged the patient's stay in the hospital. The sixteenth day after entrance, or thirty-four days after infection, a piece of muscle was removed from the gastrocnemius and the pathologic report was: "trichinosis, the muscle showing numerous trichinae in the early stage of development, with active inflammatory reaction; early stage of muscle invasion" (Fig. 1).

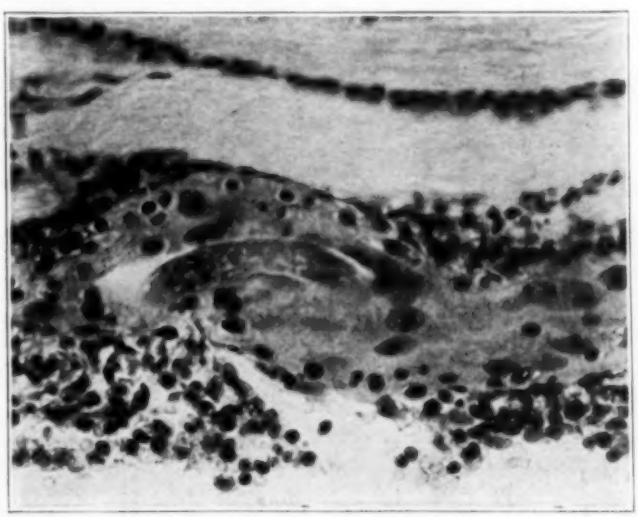

Fig. 5.—Comparatively early stage of muscle invasion, showing young larval form cut in longitudinal section (high power); twenty-eight days after infection.

This patient was followed throughout the school year, and up until June he had no further trouble.

CASE 2.—G. R., a man, aged 23, entered the infirmary on account of puffiness beneath the eyes, which began three days prior to entrance. He complained of slight gastro-intestinal distress and slight nausea (no vomiting or diarrhea) the week

9. Ransom, B. H.: Effects of Refrigeration Upon the Larvae of Trichinella Spiralis, J. Agric. Res. **5**: 819 (Jan. 3) 1916.

10. Vance, B. M., and Ryder, M.: Three Rapidly Fatal Cases of Trichinosis with Autopsy Reports, Proc. New York Path. Soc. **22**: 52, 1922.

11. Owing to an error on the part of the laboratory in making the Wright's stain, the eosinophils could not be demonstrated until the third day after admission, at which time new stain was obtained.

prior to his admission. On examination, there was rather marked swelling of the face especially in and about the orbital tissue. There was no pain on lateral movement of the eyeballs; some stiffness of the jaw muscles and soreness during mastication were experienced. The neck was somewhat stiff, and some difficulty was experienced on motion; there was

TABLE 2.—*Blood Findings in Case 2*

Date	Leukocytes	Polymorphonuclear Neutrophils	Eosinophils	Basophils	Large Lymphocytes	Small Lymphocytes	Mononuclears and Transitionals
11/ 5/24	11,000	..	..	..	..	..	..
11/ 6/24	11,300	82	0	0	0	16	2
11/ 7/24	13,400	70	12	0	4	10	4
11/12/24	30,200	51	24	0	1	22	2
12/ 1/24	17,600	65	23	1	1	10	0
12/12/24	13,000	71	2	0	4	22	1
12/17/24	14,100	79	1	0	1	16	3
1/ 6/25	5,900	50	16	1	3	28	2
1/20/25	7,700	53	10	2	5	24	6

no definite soreness or stiffness of the muscles of the extremities. The remainder of the physical examination was negative. The urine was normal on every examination. The blood findings are shown in Table 2. The thirteenth day after entrance, or forty-one days after infection, a piece of muscle

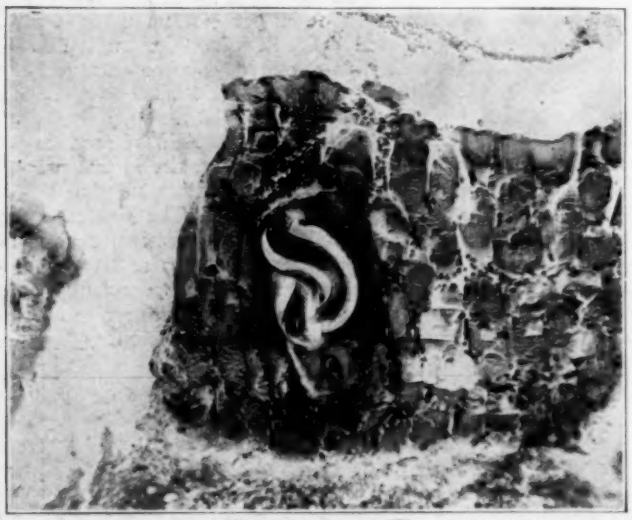

Fig. 6.—Later stage of development: infiltration still present; beginning encystment; forty-one days after infection.

was removed from the gastrocnemius muscle and examined for the parasite. The pathologic report showed the trichina more fully developed than in the first case (Fig. 6).

The patient reported his condition once every three or four weeks until June, 1925, and, with exception of an occasional respiratory infection, he has had no further trouble from his trichinae.

TABLE 3.—*Blood Findings in Case 3*

Date	Leukocytes	Polymorphonuclear Neutrophils	Eosinophils	Basophils	Large Lymphocytes	Small Lymphocytes	Mononuclears and Transitionals
11/ 8/24	11,000	60	13	0	7	15	5
11/10/24	12,000	60	22	1	6	5	6
11/15/24	15,300	62	20	0	10	4	4
11/24/24	11,900	68	17	0	7	6	2
12/ 3/24	9,500	55	20	0	0	23	2

CASE 3.—S. R. S., a man, aged 20, was admitted to the infirmary, November 6, complaining of swelling beneath the eyes and stiffness of the jaws. The swelling had begun a week previously and gradually had grown worse. There was no history of gastro-intestinal disturbance prior to the onset of his illness. On examination, there was the characteristic edema of the eyelids and of the conjunctivae, but there were no subconjunctival or subscleral hemorrhages. Lateral movement of the eyeballs brought no pain, but there was definite difficulty experienced during mastication and on lateral movement of the head. This was accompanied by stiffness and soreness of the lower extremities, and occasionally a localized area of tenderness could be made out. The rest of the examination was unimportant. Successive urinalyses were negative. The blood findings are shown in Table 3.

The patient refused to allow a piece of muscle to be removed for pathologic examination. However, the edema of the face, especially about the eyes, the high fever, the muscle stiffness and soreness, the eosinophilia and the history of eating poorly cooked pork in the same restaurant with the other patients was sufficient evidence of trichinosis.

This patient was not followed very closely, because he withdrew from school shortly following his discharge from the infirmary.

CASE 4.—G. D., a man, aged 19, entered the infirmary, November 10, with the characteristic complaint of swelling of the eyelids. There was no history of chills or fever, no gastro-intestinal disturbance of any type, no muscle stiffness or soreness up to the day of entrance. The examination revealed a generalized swelling of the face, more marked about the eyes. There was considerable conjunctival edema, but there were no subconjunctival or subscleral hemorrhages. On movement of the neck from side to side, there was evidence of stiffness. There was no pain on lateral movement of the eyeballs. Soreness and stiffness of the extremities were quite marked. The examination of the heart and lungs was negative, as was also the examination of the abdomen. The urine was normal on repeated examinations. The blood findings are shown in Table 4.

TABLE 4.—*Blood Findings in Case 4*

Date	Leukocytes	Polymorphonuclear Neutrophils	Eosinophils	Basophils	Large Lymphocytes	Small Lymphocytes	Mononuclears and Transitionals
11/10/24	6,500	61	28	0	6	5	0
11/12/24	3,600	58	12	0	5	22	3
12/ 2/24	7,000	54	26	0	0	18	2
12/11/24	6,400	68	1	0	0	29	2
12/18/24	8,500	57	15	0	3	21	4
1/ 6/25	5,000	53	7	0	2	34	4

Five days after entrance, or twenty-eight days after the infection, a piece of muscle was removed from the gastrocnemius for pathologic examination, which showed an early stage of trichina invasion of the muscle fibers; very young larval forms, and no well developed encysted forms (Figs. 2, 3, 4 and 5).

The patient, although apparently presenting one of the mild cases, continued to have muscle soreness for some weeks following his discharge from the infirmary. This gradually disappeared, and up to the time this paper was prepared he had had no further trouble.

COMMENT

As was previously stated, all four patients attended the Illinois-Michigan football game, Oct. 18, 1924, all ate in the same restaurant and all ate pork that was insufficiently cooked. In three of the four cases, pork had not been eaten for some time previous to that ingested on October 18. In one case pork had been eaten between the time of the trip to Illinois and the time of entrance into the infirmary. It seems almost impossible that the infection could have been acquired in Ann Arbor, because one of the students lived in a nearby city. Two of the patients ate at the same boarding house, while the fourth had no definite place at which he ate. This outbreak merely serves to call attention to the danger of improper handling of food that may occur at a time when large crowds temporarily gather, overtaxing the capacity of restaurants and lunch

rooms. The incubation period in all four cases was from fourteen to twenty-two days.

Early in the infection there was no marked gastro-intestinal disturbance noted by any of the four patients; however, two weeks following infection vague gastric distress appeared in one patient. During the third week, one patient had severe vomiting and diarrhea, which were preceded by a period of marked constipation. Edema of the eyelids and conjunctivae was the most constant feature in all the cases. There were no subconjunctival or subscleral hemorrhages noted. Headache was a fairly constant symptom in all cases. All complained of muscle pain, especially marked in the calves of the legs. Other muscles that were involved were those of the arms, neck, eyeballs and those of mastication. The student with the severest attack had rather marked dyspnea on the second day in the hospital, but no other evidence of lung involvement was found. No definite areas of localized swelling occurred. The temperature varied between 101 and 105 F., and remained thereabouts from eight to thirteen days. The pulse rate was not raised in proportion to the temperature; however, in one case the pulse became very rapid and extremely feeble. Sweating was a rather constant finding; one of the students continued to have profuse sweats throughout his stay in the hospital. Insomnia was quite marked in all cases, and in the latter stage of the disease, wasting was a prominent finding. The blood in all cases showed a marked eosinophilia, which varied from day to day and from week to week. There was a leukocytosis in three of the four cases, which persisted throughout the course of the disease. The leukocyte count varied between 3,600 and 30,000. In one of the cases, the leukocyte count never rose above 8,500 during the entire course of the disease; on one occasion, the count was as low as 3,600. All cases showed an eosinophilia, the highest count of which was 39 per cent. The eosinophilia persisted, and at the end of two and a half to three months it was still above 7 per cent in all the cases. Repeated profuse epistaxis occurred in one patient, while a second patient had one attack. Erythema was present in only one case. The first patient presented a rather painful lymphadenitis, which gradually subsided. Franz,[12] in 1919, reported a case of trichinosis of the cervical lymph nodes. The swellings, which frequently recurred and were frequently operated on, were found to contain trichina cysts.

SUMMARY

The infection in four cases of trichinosis occurring in university students was due to eating pork that was insufficiently cooked.

The edema of the face, especially of the eyelids and conjunctivae, was the most striking feature. This, together with the high fever, the almost general muscle stiffness and soreness and the eosinophilia, furnished sufficient evidence of trichinosis.

Absence of any early gastro-intestinal symptoms was noteworthy and quite important.

One case showed no elevation in the leukocyte count throughout the entire course of the disease.

In insufficiently cooked pork there is a constant menace of trichinosis.

The diagnosis of trichinosis was confirmed in the three of the four cases by microscopic examination of pieces of muscle removed from the gastrocnemius.

12. Franz, J. F.: Trichinosis of Cervical Lymph Nodes, Proc. Path. Soc., Philadelphia, **22**: 51 (April) 1919.

INHERITANCE OF PERONEAL ATROPHY

MADGE THURLOW MACKLIN, M.D.
AND
J. THORNLEY BOWMAN, M.D.
Instructor in Histology and Embryology, and Instructor in Medicine, Respectively, University of Western Ontario Medical School
LONDON, CANADA

Although the literature contains many references to cases of peroneal atrophy, very few records deal with it from the standpoint of its inheritance. It is with that aspect of the question that the present paper deals.

CLINICAL DESCRIPTION OF CASE

A. P., a man, aged 22, came to one of us (J. T. B.) for professional advice. Clinical examination revealed that he is suffering from peroneal atrophy. Figures 1, 2, 3 and 4 show the characteristic atrophy of the peroneal and calf muscles, in contrast to the normal musculature of the trunk, face and arms. The thighs immediately above the knees are wasted, but this is probably due to disuse. The skin over the thighs is warm and normal in color and texture; that over the legs is cold, cyanotic and slightly roughened. Between the two areas there is a distinct line of demarcation just at the knee, best seen in Figure 3. Roentgen-ray pictures of the legs and feet showed normal bone shadows.

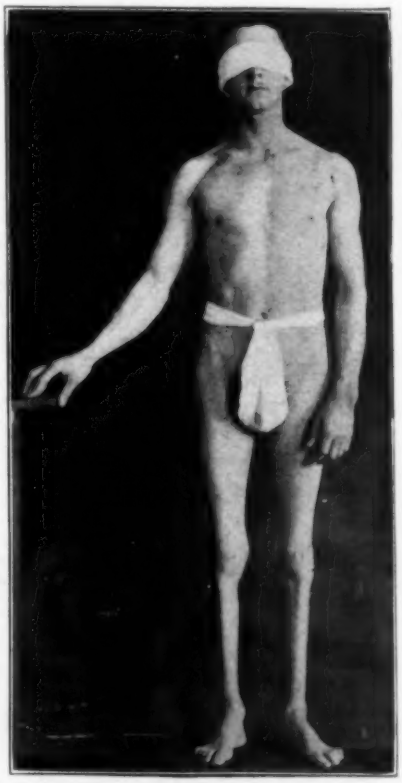

Fig. 1.—Normal musculature of upper part of body, and marked atrophy of lower part of thighs and legs. The patient supports himself with his hand.

The patient is mentally bright, earns his livelihood in a responsible position, is an accomplished pianist, and is keenly interested in music. His facility in piano manipulation attests to the excellent functioning of the musculature of the hands and arms. It is interesting to note how he manages the pedals of the piano, since all flexion and extension of the feet are impossible. The knees are held rigidly semiflexed, and the legs are lifted and lowered by the action of the thigh muscles.

FAMILY HISTORY

The patient's family history was obtained as fully as possible, he and his mother, who has a remarkable memory, cooperating heartily and intelligently. Two of the members of families in the fourth generation were written to, and the information concerning their brothers and sisters together with that relating to their respective families was thus obtained. We feel that the record is accurate. It is completely set forth in the chart of the family history, which includes five generations, composed of 101 persons in the direct line, of whom twenty-one are affected. The patient is represented as No. 40 in Generation IV. The earliest known

member of the family, I, 1, was left an orphan, and knew nothing of his parentage. He came to Canada as a young man, and we can learn nothing of his collaterals.

EXPLANATION OF CHART[1]

I, 1, died at 70.

II, 2, affected late in life; died of old age; II, 3, affected at 40; died at 73; II, 4, died at 80; III, 1, died at 61; III, 2, died at 77; III, 4, died at 50; III, 6, died at 66; III, 7, aged 70; III, 8, died at 31; III, 9, affected at 25, died at 42; twin to III, 10; III, 10, affected at 18; died at 66; III, 11, died at 40; III, 13, died in infancy; III, 14, affected at 20, aged 64.

IV, 1, died at 54; IV, 2, aged 52; IV, 3, aged 50; IV, 4, aged 47; IV, 5, aged 45; IV, 6, aged 42; IV, 7, aged 39; IV, 9, died in infancy; IV, 10, died in infancy; IV, 11, died at 18; IV, 12, aged 46; IV, 13, affected at 16, aged 44; IV, 14, died at 38; IV, 15, affected at 24, aged 40; IV, 16, died in infancy; IV, 17, affected at 14, aged 38; IV, 18, died at 28;

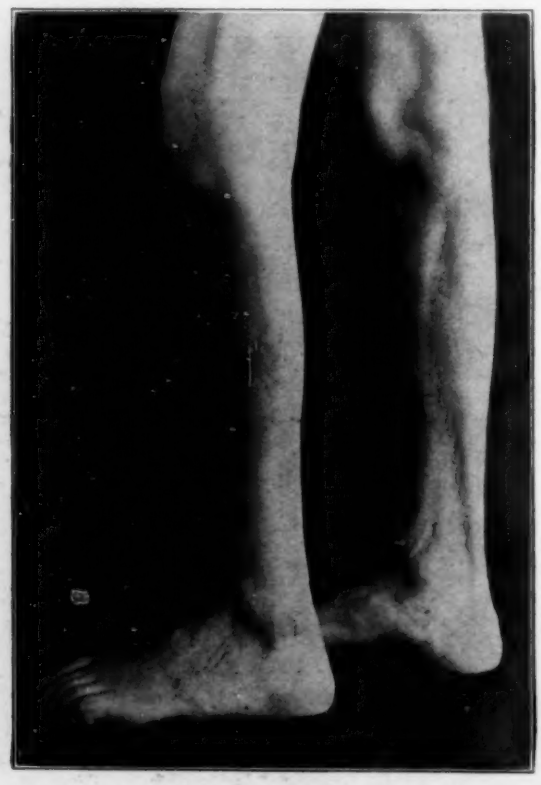

Fig. 2.—Cyanosis and roughening of the skin, as well as mottling; there is almost total absence of the calf muscles.

IV, 19, aged 28; IV, 20, aged 48; IV, 21, affected at 15, aged 41; IV, 22, aged 39; IV, 23, affected at 30, aged 37; IV, 24, aged 36; IV, 25, affected slightly, aged 34; IV, 26, aged 32; IV, 27, stillbirth, sex unknown; IV, 28, aged 29; IV, 29, stillbirth, sex unknown; IV, 30, aged 25; IV, 31, aged 23; IV, 32, aged 21; IV, 33, aged 40; IV, 34, affected at 25, aged 42; IV, 35, affected at 35, aged 35; IV, 36, died at 23; IV, 37, aged 30; IV, 38, died in infancy; IV, 39, affected at 12, aged 25; IV, 40, affected at 12, aged 22; IV, 41, aged 42; IV, 42, aged 31; IV, 43, aged 29; IV, 44, aged 27; IV, 45, affected before 18, aged 25; IV, 46, aged 23.

V, 1, aged 21; V, 2, aged 18; V, 3, aged 16; V, 4, aged 12; V, 5, aged 18; V, 6, aged 16; V, 7, aged 9; V, 8-11, living, ages unknown; V, 12, died in infancy; V, 13, aged 12; V, 14, aged 8; V, 15, affected at 12, aged 12; V, 16, aged 9; V, 17, aged 10; V, 18, aged 6; V, 19, aged 8; V, 20, aged 6; V, 21, aged 7; V, 22, aged 1; V, 23, aged 3; V, 24, aged 3; V, 25, aged 6; V, 26, aged 4; V, 27, aged 15; V, 28, aged 12; V, 29-34, exact age unknown, but all under 10.

1. Where information is not given, it is unknown.

ANALYSIS OF CHART

It is evident from the chart that here is a marked strain of inheritance for peroneal atrophy, the disease having persisted through at least five consecutive generations. It is just appearing in the fifth. It is very probable that many persons born of affected parents, who are here recorded as free, will ultimately develop the disease, for the experience of this family shows that the onset has been delayed as late as the age of 40. It has never appeared earlier than the age of 12.

A cursory glance at the chart may suggest that the disease is being eliminated, since there is a constantly decreasing percentage of affected cases in each succeeding generation. Granted that the chart shows that there are 50 per cent. affected in the second generation, 38 per cent. in the third, 24 per cent. in the fourth, and less than 3 per cent. in the fifth, such percentages are misleading, since they encourage a hopeful outlook, which is not warranted. To arrive at a correct estimate, we must exclude from the record all persons born of unaffected parents (since the descendants of these have shown no tendency to develop the disease), and all those born of affected parents but who are still under 12 years of age. Even this will give too low a percentage, because we shall be including as permanently unaffected those persons, children of affected parents, who are now between 12 and 40, and who may develop the disease later.

A calculation on the basis given above shows that in the second generation there were 50 per cent. affected, 40 per cent. in the third, 41 per cent. in the fourth and 33 per cent. in the fifth. With the exception of the second and third generations, in which all who are going to develop the disease have done so, the percentages are too low; particularly is this so in the fifth, in which all the children of affected parents are still quite young. Hence the disease is not dying out as far as percentage of affected cases goes, and, if we consider the actual number of cases, it is increasing with each generation. This will continue if the affected persons prove as prolific in the future as they have in the past.

Considering the entire family tree collectively, we find that of the 100 persons in the direct line of descent, twenty are affected. By eliminating as before all those whose parents are clear of the disease and all under 12, the percentage becomes 40. There is little doubt that this will be still further increased by additions from that group who are between 12 and 40 and now regarded as clear.

What are the chances of an affected person transmitting the disease? The answer as just derived is that 40 per cent. of his offspring will inherit it, but we may approximate more closely to the ultimate percentage by considering only the limited number of affected persons who have reached 40, dealing as before only with those whose parents are affected. Of such cases, there are ten affected and seven unaffected descendants of the first patient. There are, in addition, four unaffected persons, probably over 40, but whose exact age is unknown, and two such affected persons. This makes a total of twelve affected to eleven unaffected, which comes very close to a 50:50 ratio. We may therefore conclude that an affected person is liable to transmit his condition to half his offspring.

Are all affected persons liable to transmit the disease? The chart answers this in the affirmative. True, of the twenty-one affected only eight have transmitted it, making a percentage of about 40. Of the remaining

thirteen persons, however, seven have no children, and five have children too young to show the disease. The remaining person had a family of one, which is too small for purposes of deduction. Thus, we may exclude these thirteen cases, and say that of the eight descendants who had sufficiently large families of sufficiently advanced age for the disease to show if it were present, 100 per cent. transmitted the disease. We conclude that all persons affected with peroneal atrophy will transmit the disease to an average of 50 per cent. of their offspring, provided these are sufficiently numerous and live long enough to show it.

Fig. 3.—The line of demarcation between thigh and leg is well seen extending around the leg at the level of the knee.

Is it possible for members of an affected family who themselves show no clinical signs of the disease to transmit it to their offspring? Since the chart shows no unaffected person with affected offspring, we might think that freedom from objective evidence of disease means inability to transmit it. Such is not the case, for if a person has the hereditary taint of the disease without having manifested clinical signs, he is as potent to transmit it as if the disease were fully developed. Evidence of this is afforded by II, 3, a woman who had a family of fifteen children, six of whom were affected. She did not develop the disease until she was 40. It is highly probable that at least ten of her children, perhaps more, were born before she was 40, yet III, 4, certainly born before the disease appeared in the mother, and III, 9 and 10, probably born before that time, developed the disease. Had II, 3 died before reaching the age of 40, it would have appeared that the disease had skipped a generation. There are probably others who procreated affected offspring before exhibiting the disease themselves.

Does the disease tend to appear in or be transmitted by one sex more than the other? Ten males and eleven females were affected, but the males transmitted it only twice and the females, six times. Is the latter difference real or only apparent? Of the ten males who showed the disease, five have no children, two more have children below the age of incidence, and one had only one child. Of the remaining two in whom the capabilities of transmitting it are available for verification, both transmitted it. Of the eleven females with peroneal atrophy, two had no children and three have children still young enough to show it. Thus, 100 per cent. of the females, whose capacities for transmission we can verify, have passed it on. The probabilities are that males and females exhibit and transmit the disease equally.

There are several other questions that receive a tentative answer from this record. What is the age of onset of the disease? This is usually regarded as between 10 and 20, by most authors. In this family, it ranged from 12 to over 40, eight of the descendants being affected before 20; four, between 20 and 30; four, between 30 and 40, while one was affected at over 40. As to what induces the disease to appear in different persons at different ages is a question we are unable to answer.

On examining the age incidence when this is known, according to generations, we find that, in the second, it was over 40; in the third, 21; in the fourth, 20, and in the fifth, the only affected member is 12. Within the generations, there is great inequality in the age of incidence, and the average of the fourth is raised materially by the two descendants who were affected at 35 and 30. In twins, III, 9 and 10, not identical twins, the age of affection was 18 and 25, respectively.

There is thus observed a tendency for the disease to begin at increasingly younger ages in succeeding generations. This suggests the so-called law of anticipation that has been noted in pedigrees dealing with other diseases in which the affection develops at some time after birth. This has been referred to in several diseases of the eye by Nettleship.[2] Naturally, this law could not be at all rigid, else the age at which the first ancestor showed it would have been too great, or the age at which the present generation became affected would be pushed back into uterine existence. If there is a law of anticipation, it must occur in cycles. It is possible that those of Generation IV who showed it later than the others are the beginners of a new cycle and so appear contrary to the general law.

Fig. 4.—Normal upper part of body and marked atrophy of leg.

Does the disease have a detrimental effect on the length of life of the patient? Of the four who had peroneal atrophy and whose age at death is known, the average age at death is 58; of the eight unaffected cases in which the age at death is known, the average is under 55. There is here no great difference, the advantage resting with the affected. As to the length of life after the onset of the disease, one person lived forty-eight years, another thirty-three and another seventeen after the onset. Of those living affected with the disease now, the period of duration of the diseases varies from less than a year to forty-four years. It does not appear that peroneal atrophy shortens life.

2. Nettleship, E.: Senile Cataract in Husband and Wife, Condition of the Lenses in Their Children and Grandchildren, Tr. Ophth. Soc. U. Kingdom **28**: 220-226, 1908; Lamellar Cataract, Coppock Cataract and Retinitis Pigmentosa Affecting Different Members of the Same Pedigree, ibid. **28**: 226-247, 1908. Nettleship, E., and Ogilvie, F. M.: A Peculiar Form of Hereditary Cataract, ibid. **26**: 191-207, 1916.

In this family there is no tendency toward improvement in any case. The disease runs a gradual but progressive course, and there is no evidence of remissions toward the normal.

MECHANISM OF INHERITANCE

Is peroneal atrophy due to the presence of a unit character?

By a unit character we mean one that is carried within one chromosome, and distributed with it to half the mature germ cells. It will be present, therefore, in half the offspring. Conversely, for a quality not a unit character, the determiners are carried in two or more chromosomes, and it is only when those two or more chromosomes chance to go into the same mature germ cell that the resulting person has that quality. In such a case the percentage of affected offspring will be 25 or less, according to the number of chromosomes involved. To work out the number of affected offspring if the determiners are present in two or more chromosomes is merely a matter of application of the binomial theorem. We found that 40 per cent. of the persons in this record were affected, with the probability that this percentage would be still higher as the members of the family grew older. We may conclude that, with the ratio approximating 50:50, peroneal atrophy is due to the presence of a unit character.

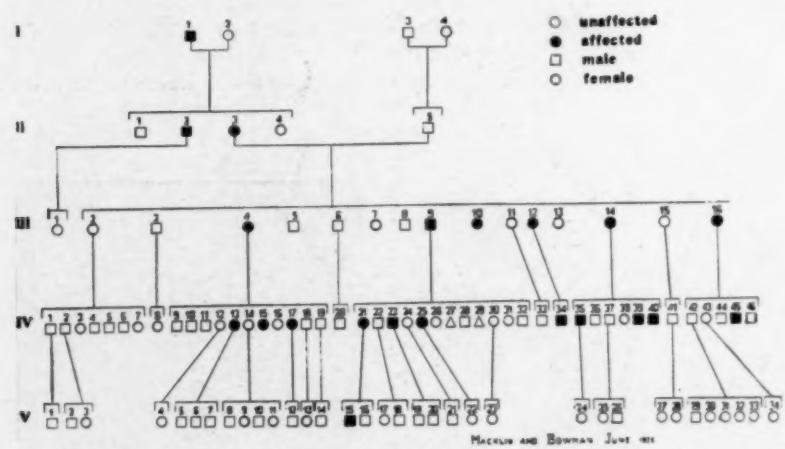

Fig. 5.—Total incidence of peroneal atrophy in five generations.

Is it sex-linked and recessive, or merely recessive?

It is not sex-linked and recessive, for in such a mode of inheritance, the affected father has no affected children, but his daughters carry the disease latent and transmit it to their sons who exhibit it, and to their daughters who carry it latent. An affected father never transmits a sex-linked recessive factor to his son. As I, 1 passed the disease to II, 2, a son, and to II, 3, a daughter who actually showed the disease, we may discard this type of inheritance. The disease is not merely recessive, for it has not appeared in any children of unaffected parents. Moreover, if the disease were recessive, we should have to assume that the mates of every affected person in the chart carried the disease latent. It might be well to state here that no mate of an affected person in the chart had peroneal atrophy.

Is it sex-linked and dominant, or merely dominant?

If the disease were sex-linked and dominant, all the daughters and none of the sons of an affected father should exhibit it. The second generation again rules this out, for II, 2 was the affected son of an affected father, and II, 4 was the unaffected daughter of an affected father although she lived to be 80. Hence, the only remaining possibility is that the factor for peroneal atrophy is dominant and not sex-linked. In such a case, males and females should show it equally, transmit it equally, 50 per cent. of the offspring of an affected person should, on the average, show the disease and it should never appear in families in which the parents are unaffected. Within the limited number of cases here presented, the facts of this record are in accord with such a theory.

The literature states that sometimes the disease is familial, the heredity not being obvious. It is easy to understand how sporadic cases occur in this disease. There is no way of telling which persons are going to develop the disease, until the atrophy actually begins. As some persons do not develop it until relatively late in life, it is conceivable that if the parent transmitted the germ of the disease to his offspring, but died before developing it himself, the child would appear to come from free stock.

The conclusion that peroneal atrophy is due to a factor that is dominant and not sex-linked is at variance with that of Herringham,[3] which was deduced from the record of a family supposed to be suffering from peroneal atrophy. His record definitely suggests that it is due to a sex-linked and recessive factor, the only discordant note being that an affected father in one instance transmitted it to his son. Herringham states that this type of inheritance is not typical of the disease but of this family. Several factors may be responsible for this difference in conclusions. The family record may not have been given correctly by the family themselves; the women of the family may have tended to exhibit the disease late in life, and so have died before it appeared (the ages at which they died are not given), or, what seems more probable, the disease with which Herringham was dealing was not real peroneal atrophy. In the family reported by him, the atrophy of the forearms and hands was an almost constant feature. In none of the members of the family here recorded who have been examined has there been any atrophy of the hand or arm, and none of the members written to have ever referred to any atrophy except in the leg. Thus the question arises as to whether Herringham's cases were not distal myopathy. It is possible that the difference in the manner of inheritance is explicable on this basis. Certainly our study shows no tendency for males to be affected with peroneal atrophy while the females are exempt, or for the disease to be transmitted to affected males through unaffected females. It is possible that in the future some of these myopathies as well as other diseases which seem to overlap each other in their signs and symptoms may be distinguished from each other in part by the manner of their inheritance.

EUGENIC CONSIDERATIONS

It is obvious that a disease such as peroneal atrophy should be eliminated from society, if possible. Ways of accomplishing this at once suggest themselves. First of all, we would place the value of thoroughly educating the affected as to the certainty of their potency to transmit the disease. Continence, contraception and even sterilization might be enjoined.

3. Herringham, W. P.: Muscular Atrophy of the Peroneal Type, Affecting Many Members of the Same Family, Brain **11**: 230-236, 1889.

No member of the family reported has inherited more than a single factor for peroneal atrophy. What would be the result of inheriting the factor from both parents is not known. In double dose, it might be a lethal factor and the individual unable to survive. If he did inherit a double dose of the disease, and lived to maturity, he would have 100 per cent. affection occurring in his offspring. Although it is a safe eugenic rule for persons having a dominant factor for disease in their family to marry if they themselves are free of it, the same cannot be said of peroneal atrophy, for one cannot tell until one is past middle age and so past the reproductive period whether one has inherited the disease. The only safe rule for all persons who are born of affected parents, or born of parents who died young but who had come of affected stock, is either not to marry or to take absolutely safe precautionary measures against having children. This applies to unaffected as well as affected children of affected parents.

We cannot refrain from mentioning here the important therapeutic value of the effect produced on the mental outlook of the patient by proper education as to the disease, by removal of any mystery or superstition connected with it, especially any idea that for the sins of some progenitor they were paying "even unto the third and fourth generation." An understanding of the situation as far as it is known and a grasp of the future possibilities has done much toward lightening the mental burden, although not curing the physical disability.

SUMMARY

In a family composed of 101 persons, twenty-one were affected with peroneal atrophy in five generations.

In this family, the disease is not transmitted by persons who do not have the disease, either manifest or latent.

It is possible for persons who have not yet shown the disease to procreate offspring to whom they transmit it. If the parent lives long enough, he will develop the disease. It is possible for the parent to transmit it to the offspring and for the parent to die before developing the disease.

Males and females exhibit the disease equally and probably transmit it equally.

Half the offspring of an affected parent are apt to be affected, provided the family is reasonably large and lives long enough to develop the disease. This applies to those parents who have the disease manifest at the time of procreation and to those who have the hereditary taint but have not yet developed it.

Having the disease appears in no way to affect the longevity of the individual.

The condition is apparently dominant to the normal and is not sex-linked.

For those individuals who belong in affected families, whether they themselves are affected or not, it is wiser not to have children in order to eradicate the disease.

What is Normal Weight?—The records from insurance data and from health examinations are proving that when a man or woman is in the best possible physical condition, the weight at that time is the normal weight. If you sleep well, eat adequate food, eliminate properly, exercise in the open air, do not tire easily, recuperate quickly, you are healthy. If you remain at practically the same weight with a possible slight seasonal variation, you are of normal weight for your type of build.—Wood, T. D., and Dansdill, T.: By-Ways to Health, 1925, p. 4.

CENTRAL FRACTURE OF THE ACETABULUM

REPORT OF CASE *

SAMUEL W. BOORSTEIN, M.D.
NEW YORK

Cases of central fracture of the acetabulum are not common. The proper diagnosis and the proper methods of treatment are still being disputed. Recently, articles were published by Coley,[1] Kleinberg [2] and Whitman,[3] and interest was aroused in this type of fracture. The compiling of the statistics and end-results will undoubtedly be facilitated by reporting fractures of this type coming under the surgeon's care.

REPORT OF CASE

History.—S. E., a man, aged 46, a book agent, almost totally blind, whose family history and previous history have no bearing on the case, and who, with the exception of progressive myopia, had enjoyed fair health, was hit by an automobile,

Fig. 1.—Appearance of fracture on first roentgenogram (retouched), taken at bedside in July, 1924: *A*, irregular comminuted fracture of the acetabulum especially involving the upper half; a small fragment lies external to the head and posterior to it; *B*, larger fragment internal to the acetabulum in the pelvis itself, probably from the center of the acetabulum; *C*, head displaced slightly upward and inward, having pushed partly through the acetabulum; *D*, small fragment broken off from the side of the great trochanter, lying just external to it.

July 5, 1924, and landed on the right side. He was taken to a hospital and had to be carried in, not being able to put weight on either leg. He experienced severe pain in the right hip, but refused to stay. He was taken home by a taxicab and carried up two flights of stairs. I saw him about an hour after the accident.

Physical Examination.—The patient complained of severe pain in the right hip, and any jarring of the bed caused aggravation of the pain so that a proper examination could not be made. The patient kept the hip and knee flexed at an angle of 150 degrees, and the limb markedly inverted. With great difficulty we removed the clothing. Any motion of the hip produced spasm. It was hard to determine whether the head of the femur was dislocated posteriorly, but I was inclined toward that belief. Nélaton's line and Bryant's triangle could not be satisfactorily determined because of severe tenderness over the great trochanter. The flexion of the hip prevented careful examination of the groin. Measurements: R. A., 30½; R. U., 32; L. A., 31; L. U., 33.

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* Read before the Bronx Surgical Society, Dec. 23, 1925.

1. Coley, B. L.: J. Bone & Joint Surg. **6**: 458 (April) 1925.
2. Kleinberg, S.: Ann. Surg. **78**: 806 (Dec.) 1925.
3. Whitman, Royal: Ann. Surg. **71**: 62 (Jan.) 1920.

As the definite diagnosis could not be reached and the patient was in extreme pain, I thought it best merely to make him as comfortable as possible till the morning. (The examination was made at midnight.) The temporary diagnosis was a posterior dislocation of the head of the femur or a fracture of the great trochanter. A possibility of central fracture of the acetabulum did not occur to me.

I applied slight traction and abduction and was able to bring the leg into a better position. The pain was thereby diminished.

The next day being Sunday, I was unable to find a roentgenologist to take a bedside roentgenogram. Though the pain had somewhat subsided, he still suffered too much to be

Fig. 2.—Condition, April 17, 1925: considerable callus of acetabulum; joint space good; the displaced head is clearly shown.

removed to a hospital. I therefore considered it best to immobilize the limb in a Thomas Jones splint till a roentgenogram could be obtained.

With a little traction while the ring of the brace pressed against the pubis, I felt something slip and I was then able to get complete abduction in the same position as Whitman's method for fractured femur. The limb was then put in marked abduction and outward rotation and fastened to the side of the bed. The pain was relieved considerably.

The roentgenogram was taken in a day or two. The roentgenologist reported that the acetabulum showed an irregular comminuted fracture especially involving the upper half. A small fragment lay external to the head and posterior to it (fig. 1 *A*). Another larger fragment lay internal to the acetabulum in the pelvis itself, probably from the center of the acetabulum (fig. 1 *B*). The head was displaced slightly upward and inward, having pushed partly through the acetabulum. The greater trochanter of the femur showed a small fragment broken off from the side and lying just external to it (fig. 1 *C*). The roentgenologist made this diagnosis: "The patient has had a dislocation of the head of the femur with a fracture of the protecting portions of the acetabulum. The dislocation has been reduced, but the fragments of the broken acetabulum show a considerable displacement."

Progress.—The patient was kept in bed till August 8; i. e., five weeks. August 1, the traction of the Thomas Jones brace was released. August 8, he was permitted to sit up. Massage of the limb was begun, August 10. There was no interference with urinary or rectal functions throughout this time. August 12, he was permitted to get up on crutches and use the limb slightly. August 23, the examination showed that motion of the hip was free in all directions except to marked abduction. There was a great tendency to keep the limb in inversion.

Gradually the patient discarded the crutches and used a cane. If he had had good vision, he probably could have walked without a cane. The pain and limp diminished.

The examination five months later showed that the patient could walk in the street, and ascend and descend stairs. He still had a slight limp. He used a cane, mainly because of his poor vision. When watched and urged to walk in the house, the limp was hardly noticeable. He still had a great tendency to invert the entire limb. When ordered to evert it, he did it without much disturbance.

Feb. 4, 1925, a roentgenogram still showed evidence of a crushing fracture of the acetabulum. The head of the femur had been driven through the acetabulum into the pelvis. A large fragment of bone, forming the wall of the acetabulum, was displaced inward so that the spine of the ischium touched the sacrum. At that time the patient walked without a cane. He limped when walking rapidly but could move the hip freely even to abduction. Still he had a tendency to inversion. He experienced pain only in rainy weather.

Physical examination, Sept. 3, 1925, showed a slight flattening of the region of the great trochanter, and atrophy of the muscles around the trochanter. There was slight limitation to abduction and outward rotation. Inward rotation, flexion and extension were free. Knee and foot motion were good. The spine showed no deviation. Measurements:[4] R. A., 31; L. A., 31½; R. U., 33¾; L. U., 34½; R. T., 18; L. T., 18; R. K., 13¾; L. K., 13½; R. C., 12; L. C., 13.

A roentgenogram, September 26, showed complete union of the acetabular brim. The dislocation of the head with the rim was about one-fourth inch inward. The bone structure of the femur was good (fig. 3).

The accompanying illustrations show the progress of the union of the fracture.

COMMENT

This case represents the type of central fracture of the acetabulum in which there is also a dislocation of the head backward, probably an ischiatic luxation. This caused the marked flexion of the hip and inversion. A plain central fracture of the acetabulum does not usually give inversion, especially with flexion. A posterior dislocation of the head gives flexion and inversion, but the head can be felt posteriorly. Of course, the fracture of the tip of the great trochanter masked the symptoms a great deal.

Coley emphasizes that the history of a blow over the great trochanter, tenderness and disability of the hip joint are the cardinal symptoms of this fracture, but warns that a definite diagnosis can seldom be reached without a roentgenographic examination.

The question remains whether the dislocation was produced at the time of the accident or whether it was caused by the moving of the patient to and from the

Fig. 3.—Condition, Sept. 26, 1925: complete union of the acetabulum brim; dislocation of the head with the center of the acetabulum, about one-fourth inch inward; bone structure of femur good.

hospital by a hackman. It is my impression that the dislocation occurred at the time of the accident.

Figure 1 *A* shows that the upper and posterior part of the rim of the acetabulum is also broken off. The

4. The following letters are used by orthopedists to designate certain definite points from which measurements are taken: R. A., distance from right anterior-superior spinous process of ilium to internal malleolus; L. A., left anterior-superior spinous process; R. U., umbilicus to right internal malleolus; R. T., circumference of the right thigh, in this case taken at 8 inches above the lower border of the patella; R. K., circumference of right knee; R. C., circumference of right calf. The figures are in inches.

head was therefore carried backward a great deal, though not completely dislocated. Speed [5] and Cotton [6] give the same explanation of fracture of the rim of the acetabulum.

The type of displacement of the head into the pelvis is that form which, by pushing through the cotyloid cavity, carries the acetabulum with it.

The reduction in this case was done without anesthesia, though I had originally intended using it. Though full reduction has not been obtained, the function is good. I did not attempt to change the position after the first roentgenogram, since I considered it a good position in view of the marked abduction permitted. I also took into consideration the severe fracture of the entire rim of the acetabulum. The end-result shows that one can hope for good function even when there is some displacement of the cotyloid cavity.

Subsequent roentgenograms showed that the position was retained but a great deal of callus thrown out.

The immobilization in a Thomas Jones splint, especially in combination with a Thomas abduction frame, can be employed for this fracture. This facilitates the treatment of the patient at home when he is not able or is unwilling to be treated in a hospital where a plaster cast can be applied. The Whitman abduction cast is better. (I have used it in several cases of central fracture and obtained very good results.)

The deficient vision of this patient interfered considerably with the progress, as he could not do the exercises properly. Still, in five weeks he was on crutches, and in six or eight weeks walking down the stairs.

SUMMARY

1. Central fracture of the acetabulum, though rare, does occur with sufficient frequency to be thought of when a patient falls or is thrown to the ground, as when struck by some vehicle.

2. An ischiatic luxation may occur when the rim of the acetabulum, especially the posterior part, is broken off.

3. It must be differentiated from a true posterior dislocation of the hip and fracture of the neck of the femur.

4. The immobilization can be obtained by a Thomas Jones splint in marked abduction.

5. Early use and exercises will be of benefit and produce proper function even in such severe fractures.

529 Courtlandt Avenue.

5. Speed, Kellogg: Fractures and Dislocations, Philadelphia, Lea & Febiger, 1916.

6. Cotton, F. J.: Dislocations and Joint Fractures, Ed. 2, Philadelphia, W. B. Saunders Company, 1924.

Maintenance of Health.—General health is usually maintained more easily when the amount of good food harmonizes with the ability of the digestive organs to take care of it easily. It does not take long for a normal individual to know what constitutes this amount. The welfare of the body depends not only on the amount eaten but on that which is digested and assimilated. If greatest efficiency can be maintained with a lesser quantity of food, why tax the organs with a greater supply?—Wood, T. D., and Dansdill, T.: By-Ways to Health, 1925, p. 19.

SEGMENTAL CEREBRAL MONOPLEGIA OF VASCULAR ORIGIN *

GEORGE WILSON, M.D.
AND
N. W. WINKELMAN, M.D.
PHILADELPHIA

The development of a paralysis of an extremity or part of an extremity presents a problem in diagnosis and, *ipso facto*, in treatment that is difficult and one in which error is likely to occur. Among the organic causes that may produce this type of paralysis are lesions of the peripheral nerves, of the vascular apparatus of an extremity, the anterior roots and horns of the spinal cord, and of the cerebrum. Hysterical segmental monoplegia is frequently seen, and the monoplegias of organic origin are often thought to be functional in type. After one has excluded by careful history and examination all lesions capable of producing monoplegia except a cerebral one, the question arises, What is the nature and location of the lesion? In the vast majority of cases, the site of the injury is in the motor cortex, and the exact area of the cortex involved will depend on the location of the paralysis. When we consider the nature of the pathologic process, the mode of onset is of great importance, but this cannot be depended on entirely in forming a conclusion. An acute onset usually means a vascular accident, although it may be seen in brain tumor.[1] One's opinion as to the nature of the lesion will be partly made by the progress of the case. A steady progression extending over weeks will clinch the diagnosis of a tumor or of an abscess, whereas if the condition remains stationary or even improves, vascular disease is more likely. An extremely localized area of encephalitis involving the

Fig. 1 (case 1).—Brain at necropsy: *x*, area of softening in left motor region.

* From the Department of Neurology of the University of Pennsylvania School of Medicine, and the Neurologic Service and Laboratory of Neuropathology of the Philadelphia General Hospital.

1. Wilson, George; and Winkelman, N. W.: Atlantic M. J. **28**: 285-290 (Feb.) 1925.

motor cortex may produce a partial or complete paralysis of an extremity. A history of trauma to the head will help to decide the etiologic factor. The following case reports, two of them with necropsy, are illustrative of the foregoing facts:

REPORT OF CASES

CASE 1.—*History.*—A man, aged 70, suddenly developed a paralysis of the right side of the face and a disturbance of speech fifteen years before admission. These symptoms persisted for the rest of his life. He developed gangrene of the feet and died fifteen days after admission to the hospital. Necropsy showed a localized cortical softening. He was admitted to the neurologic service of the Philadelphia General Hospital, Feb. 8, 1924. His chief complaints were a paralysis of the right side of his face, "stuttering," and pain in his toes. Fifteen years previously, the patient suddenly developed paralysis of the right side of the face without loss of consciousness but with a disturbance of speech which he characterized as stuttering. The weakness of his face cleared up to some extent, and the difficulty in his speech became less noticeable. About nine months previously, he experienced pain in his toes and feet. The legs never swelled, but the right foot occasionally became red. He had frequent frontal and occipital headaches, which were relieved by pills. His sight had failed for some years, the vision being poorer in the right eye. The past medical and social histories were unimportant, with the exception that he had anthrax several years previously and a fracture of the skull nine years before.

Fig. 2 (case 3).—Brain at necropsy: *x*, softening of right paracentral lobule.

Examination. — The patient was poorly developed and undernourished. The toes of the right foot were discolored and cold, and the pulsation in the dorsalis pedis arteries could not be detected. The lungs, heart and abdomen presented nothing of importance. He was partially blind as the result of cataracts; otherwise the eyes were normal. Slight ptosis of the right lid was present, and the right corner of the mouth drooped. The tongue protruded in the midline, and the soft palate was fixed on the right. There was definite dysarthria. All the deep reflexes were prompt and equal. Slight weakness and incoordination were present in the lower extremities.

Clinical Course and Outcome.—The condition of the foot improved during the first few days in the hospital. Ten days after admission the patient suddenly became weaker and sank into a stupor from which he could not be aroused. The left foot became gangrenous shortly before he died.

Laboratory and Necropsy Reports.—The spinal fluid and blood Wassermann reactions were negative; the urine was normal. The blood chemical findings were studied on two occasions and showed no deviation from the normal, with the exception of the estimation of the blood sugar, which was 125 mg. per hundred cubic centimeters. When the brain was removed, an area of softening (fig. 1) was seen in the left motor region, measuring 3.5 cm. in width and 4.5 cm. in length. The depth of the cavity was 2.5 cm. The area of softening did not extend below the sylvian fissure or behind the central fissure. On horizontal section, the bottom of the cavity lay against the external capsule and claustrum.

This case represents a rather localized area of softening arising from occlusion of one of the ascending branches of the middle cerebral artery. Broca's area was intact, and the speech difficulty was a dysarthria rather than an aphasia. When the patient presented himself for examination, fifteen years after the onset, the right side of the face and palate were weak. There is no record of it in the history but from the extent of the lesion, it is likely that weakness of the right hand was present at the onset.

CASE 2.—*History.*—A white man, aged 28, with subacute endocarditis, developed weakness of the left hand, left side of the face and headache. Eight days previously, his left hand became cold and stiff, and when he awoke on the following morning he could not move the fingers but could move the wrist, elbow and shoulder. He had no pain in the affected part but did complain of headache. In the eight days that had elapsed since the onset of the trouble, the condition had improved. He had inflammatory rheumatism in 1918 and gonorrhea in 1917, but he had never had a chancre.

Examination. — The systolic blood pressure was 160; diastolic, 75. The usual signs of aortic and mitral regurgitation were present. A marked weakness of the left hand, amounting to a total paralysis, and slight paresis of the remainder of the extremity, were found. The lower part of the left side of the face lagged on motion, and the tongue deviated to the left on protrusion. Speech, the left lower extremity, the gait, the plantar and abdominal reflexes, pain, touch, stereognosis and spot localization were normal. All the deep reflexes were present, with the exception of the left triceps, which was diminished. Sense of position was normal, except for slight impairment in the left little finger. Mental examination revealed nothing abnormal.

Clinical Course and Outcome.—The paralysis largely disappeared; later, a flare-up of the endocarditis occurred and the patient developed purpura. In a few months jacksonian attacks limited to the left upper extremity made their appearance, although in some there was an overflow and the spasms became generalized. He had the idea that he could control the fits by sitting on his left hand; this he constantly did, so that in time it became flattened as though it had gone through a wringer, and manipulation of the hand was feared because he said that it would bring on a spell.

The laboratory reports and examination of the eye grounds were negative.

In a great many ways this case resembles case 1. The fact that the lesion was on the right side of the brain would account for the absence of speech disturbance. The nature of the lesion in this case is undoubtedly vascular, either thrombotic or embolic. The presence of endocarditis and of purpura favored embolism. The occurrence of fits probably meant that an area of the cortex was unstable and threw out

irregular discharges of motor impulses. Stengel and Wolferth,[2] in a paper on mycotic aneurysms, have pointed out that such a disturbance in the vascular apparatus is not unusual, and it is possible that in this case, after an embolus of infectious material, a mycotic aneurysm developed.

CASE 3.—*History.*—A negress, aged 38, admitted to the Philadelphia General Hospital, Jan. 18, 1924, complained of weakness of the left side of the body, headaches, loss of memory and vision, and some loss of control of the urinary bladder. The present illness began two years previously with weakness, numbness and tingling in the left leg. Six months later there was an augmentation of the symptoms, in which the left arm and the left side of the face also felt peculiar and stiff and were the seat of formication. The speech was affected, and the patient became progressively weaker. Headaches appeared early and persisted. About one week before admission to the hospital, she became much worse and a partial paralysis of the right side of the body developed. The patient had had tonsillitis, malaria and rheumatism. She had been married eighteen years and had had one child and one miscarriage.

Examination.—The lungs and abdomen were normal. The heart was enlarged to the left, and a loud systolic murmur was heard over the entire precordium. The speech was slightly dysarthric. She was oriented but gave a poor record of her case. Weakness was present in all four extremities with exaggerated reflexes, bilateral Babinski reflex and ankle clonus on the left. The abdominal reflexes were absent. The pupils were dilated, equal, irregular and reacted sluggishly to light and in accommodation. The eye grounds were normal. As far as could be determined, sensation was normal. The patient could stand and take a few steps without support. Of the four extremities the left lower showed the greatest amount of paralysis and was extremely spastic, and the left foot and toes were permanently extended. The urine, blood and spinal fluid were normal. Before admission to the hospital, she had been actively treated for syphilis and had improved. The patient died twenty-seven days after admission to the hospital.

Pathologic Report.—When the brain was removed, the most prominent feature, aside from the generalized smallness and convolutional atrophy, was an area of softening in the right paracentral lobule measuring 4 by 2 by 2 cm. (fig. 2). When the brain was further examined, recent areas of softening were seen involving the basal ganglions and internal capsules, and minute areas of softening were also found in the occipital lobes. The left anterior cerebral artery could be traced as it wound over the genu of the corpus callosum, and at the summit a much constricted area was noted with obliteration of the remainder of the artery.

This patient had many vascular lesions throughout the brain. An occlusion of the anterior cerebral artery supplying the right paracentral lobule similar to a case described by Wilson [3] was noted. A sudden paralysis, spastic in character, in the left lower extremity without sensory loss was enough to localize the lesion in the cortex.

COMMENT

The term segmental cerebral monoplegia was first used by Spiller [4] in 1919. He reported four cases, in two of which were cerebral tumors confirmed by operation and in a third case was an unconfirmed tumor. The fourth was probably due to an occlusion of a small branch of the middle cerebral artery but was without necropsy.

2. Stengel, A., and Wolferth, C. C.: Mycotic Aneurysms of Intravascular Origin, Arch. Int. Med. **31**: 527-554 (April) 1923.
3. Wilson, G.: Crural Monoplegia and Paraplegia of Cortical Origin, Arch. Neurol. & Psychiat. **10**: 669-678 (Dec.) 1923.
4. Spiller, W. G.: Contributions to Medical and Biological Research, Dedicated to Sir William Osler **2**: 1175, 1919.

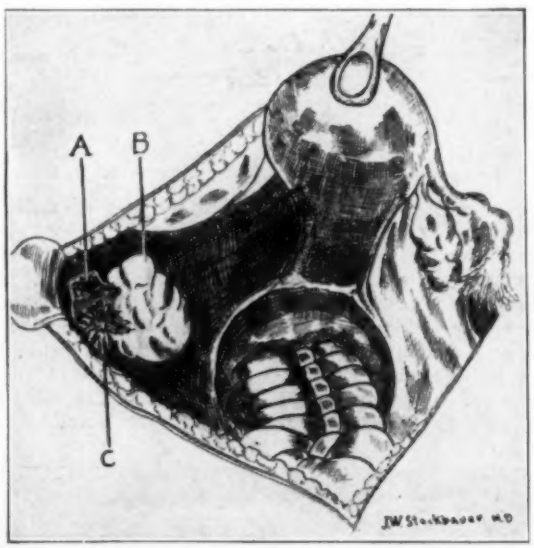
Most of the cases of cerebral monoplegia and segmental monoplegia have been due to slowly growing neoplasms or to injury. Clinical cases have been reported, of supposed vascular disease producing localized paralysis. The paralysis of an extremity or part of an extremity when due to a cerebral condition is practically always cortical.

Clinical Notes, Suggestions and New Instruments

ECTOPIC PREGNANCY OF AN ANOMALOUS FALLOPIAN TUBE

JOSEPH W. STECKBAUER, M.D., MANITOWOC, WIS.

This case is reported to put on record an unusual ectopic pregnancy. The symptoms in the case also suggested a pathologic condition on the right side, whereas the ectopic pregnancy was found on the left side.



Appearance of pelvic organs at operation, drawn from memory: *A*, ruptured ectopic pregnancy; *B*, ovary; *C*, fimbriated end of tube.

REPORT OF CASE

A fairly well developed girl, aged 19, married, entered the St. Louis City Hospital, complaining of colicky pains in the right lower quadrant. The pain at first was general; it came on suddenly and gradually grew worse. Vomiting began before the pain. Although, at the time of admission, the patient denied fainting, she admitted after the operation that she fainted three or four times between three and seven hours after the first attack of pain. She began menstruating at the age of 14, and had had no dysmenorrhea. The menstrual periods were always irregular, varying from twenty-one to thirty days. The last period was twenty-eight days before she was taken sick. The last three menstrual periods were regular. There was nothing unusual noted in the last menstrual period.

The patient's lips were slightly paler than normal, but did not indicate any severe hemorrhage. The abdomen was tender in the region of the appendix, with rigidity of the right rectus muscle. The external genitalia were normal. The cervix was of about normal consistency, pointing downward and backward, and was freely movable, with no tenderness. The uterus was normal in size; it was in good position, with very little tenderness on manipulation. No adnexal masses were palpable. At the time of entrance, the temperature was 100.2; pulse, 120; respirations, 24. The white blood cells numbered 16,200, and the clotting time was four minutes.

A diagnosis of probable acute appendicitis was made, and I performed a laparotomy. A large amount of blood was found in the peritoneal cavity. The uterus was in the midline; it was about normal in size and consistency, and was in good position. The right adnexa were normal; the left side of the uterus had no structures attached to it. A pregnant fallopian tube was found attached high to the lateral wall of the pelvis. The tube was joined to the pelvic wall by a small pedicle; from this pedicle there was some thickening in the peritoneum, which terminated in the region of the internal ring. Close to the fallopian tube, a large ovary was found attached to the pelvic wall by a ligament. No connection between the tube and the uterus could be found. The peritoneum of the bladder blended with that of the posterior culdesac and the anterior aspect of the rectum. No round ligament was present between the uterine horn and the inguinal canal, but when the uterus was pulled to the right and upward, a fold was found leading from the internal ring up toward the left horn of the uterus. The pregnant left tube was removed.

Speculum examination ten days after operation showed some cyanosis of the cervix and the vagina. It was impossible to find any opening that could be connecting the anomalous tube on the left side with the vagina.

The patient made an uneventful recovery.

Commerce Building.

A RADIUM APPLICATOR FOR USE IN THE ESOPHAGUS

JOHN H. FITZGIBBON, M.D., PORTLAND, ORE.

One of the chief requirements in the use of radium for carcinoma of the esophagus is a suitable method of application. The instrument illustrated (fig. 1) has been designed to simplify the technic of application, and to prevent discomfort to the patient while being treated. It consists of a radium capsule large enough to hold five 10 mg. radium needles. This is attached to a tapered spiral spring tipped with a perforated metal olive. At the upper end is a flexible piano wire. The threads are the same as in the bulbs of the Sippy esophageal dilator, and olives may be attached at any

Fig. 1.—Radium applicator for use in the esophagus: *A*, assembled parts of applicator; *B*, unassembled parts of applicator; *C*, capsule and olive tip without flexible spiral; *D*, wire and large olive to measure distance from incisors to stricture.

of the three points shown in the illustration, if desired, thus all or part of the instrument being used, as required. The groove at the base of the spiral is to aid in fastening a rubber filter over the capsule. A fountain pen bladder makes an excellent filter. A small opening at the upper end is used to attach a thread to the capsule.

METHOD OF TREATMENT

After the patient has swallowed a silk thread, the stricture is dilated to suitable size by use of the Sippy bulbs, and the silk thread guide left in place. The next day, or whenever it is decided to apply radium, the patient is given a hypodermic injection of atropine. This stops secretion of saliva and mucus, which prove troublesome if not controlled.

After the injection has taken effect, the silk thread is passed through the olive tip of the applicator, and with the thread held taut, the instrument is easily passed into proper position. This position is determined by measuring from the

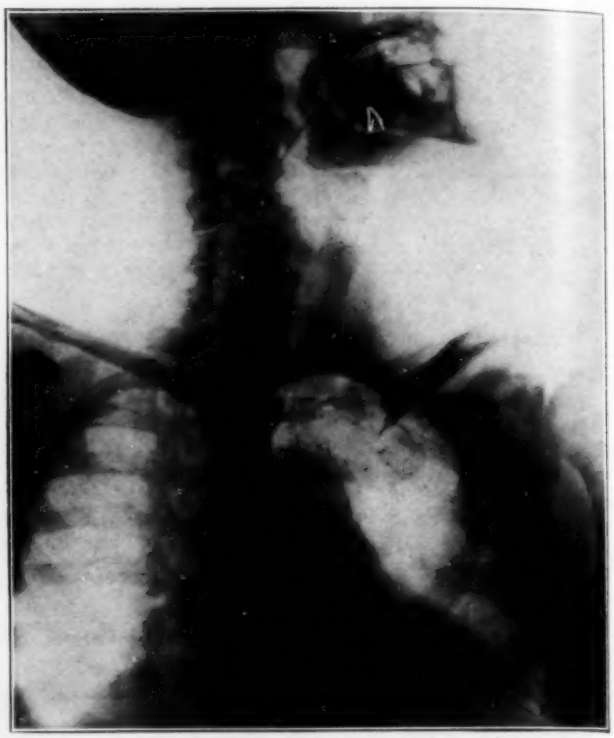


Fig. 2.—Appearance of applicator in position behind arch of aorta.

top of the growth to the incisor teeth, and, with knowledge gained from fluoroscopy or esophagoscopy, the correct distance is marked off on the piano wire above the capsule. The instrument is passed until the mark is even with the incisors. To obtain this measurement, an olive may be attached as shown (fig. 1 D), and the piano wire used as a sound. This prevents error from using a sound of less flexibility than the wire of the applicator. When the instrument is in place, a hemostat is attached to the wire at the level of the incisors, and is used to hold the instrument in position.

Fluoroscopy may be used to check the position of the capsule. It has been found, however, that by careful measurement the capsule can be placed as accurately as by fluoroscopy.

During treatment, the patient can sit in the office for four or five hours, without more than moderate discomfort. With only the small piano wire and silk threads in his mouth, breathing is not interfered with, and there is no choking, provided salivary secretion is controlled. It is usually necessary to repeat the dose of atropine at the end of two or three hours.

The applicator is manufactured by V. Mueller & Co. of Chicago.

Stevens Building.

Definition of Health.—It must be understood that health is not to be defined as the absence of appreciable disease, but a state of well being, permitting self-support and a full measure of enjoyment in life according to age and condition. Thus we consider industrial rehabilitation, of graduates of the sanatorium or hospital, as part of the health job.—Emerson, Haven: *Hospital Social Service* **13**:109 (Feb.) 1926.

PAROXYSMAL TACHYCARDIA FOLLOWING THE USE OF AIR IN TESTING FALLOPIAN TUBE PATENCY

RICHARD A. KERN, M.D., PHILADELPHIA

Because of the frequency with which air is used instead of carbon dioxide in the routine performance of the Rubin test for sterility, this case is put on record.

Nov. 11, 1925, Mrs. W. H. B. consulted a gynecologist because of sterility. A routine pelvic examination discovered no abnormality in the uterus and adnexa. Then, with the usual sterile precautions, air was injected, under manometric control, through a blunt nozzle into the uterine cavity to determine whether or not the fallopian tubes were patulous. The air apparently entered the abdominal cavity without obstruction. The amount was not measured, but the gynecologist believes that it was not more than the contents of one or two ordinary-sized hand-bulbs. The patient suffered no inconvenience and left the office immediately after the examination.

About an hour later, as she was about to board a train, she was suddenly seized with intense pain low in the left chest, in the anterior axillary line near the costal margin, and pain in the left side of the neck. The pain was intense in its severity and was made much worse by breathing. At the same time there began marked cardiac palpitation. She made her way back to the gynecologist's office, which fortunately was not far distant.

On being summoned from a neighboring office, I found the patient sitting on an examining table; she was in obvious distress, her face flushed and her breathing short and jerky. The heart action was rapid and tumultuous, but the pulse was of good quality. The rate at the wrist and the heart was 152. The heart was normal in size, the heart sounds of good quality in spite of the tachycardia, and there were no murmurs.

Since the pelvic examination had been negative and there were no lung signs, a lung embolism was considered unlikely as an explanation of the symptoms. On the other hand, pain in the lower part of the chest, referred to the neck and made worse on breathing, is not uncommonly seen as a transient phenomenon after the performance of the Rubin test. It therefore seemed logical to conclude that the patient's discomfort was due to the presence of a collection of air under the left dome of the diaphragm. If this was true, it seemed reasonable to expect a relief from pain if the patient was placed in a horizontal position. This was done, and after one or two deep breaths the patient, to her own great surprise, became entirely comfortable. To the surprise of the gynecologist and myself, her radial pulse rate, which both of us were counting at the time, as well as the rate at the heart, dropped almost immediately to the upper seventies and remained there. Five or ten minutes later we again asked the patient to sit up, and there was a prompt return of the pain but with a much diminished severity, while the pulse rose only slightly, going no higher than the upper eighties. On lying down, the patient again had prompt relief from pain. She was allowed to lie in this position for a time, the abdomen being massaged with a view to scattering and hastening the absorption of the intra-abdominal air. Examination of the heart at this time showed a normal rate and action; in fact, there was no discoverable cardiac abnormality. She was later able to return to her home and suffered only moderate discomfort during the rest of that day, if she remained in the upright position. That nearly an hour elapsed between the air injection and the onset of the pain was probably due to obstruction offered by intervening organs to the passage of the air.

Because of the abrupt offset in the heart rate from 152 to about 76, a change that required only a second or two, it seems justifiable to identify the circulatory disturbance as a paroxysmal tachycardia, even though no graphic confirmation was available. Its occurrence in association with air under the diaphragm and its relief immediately following a shift of the air from beneath the diaphragm justifies the assumption that the tachycardia resulted from the air bubble, probably a reflex effect.

The occurrence after the Rubin test of the type of pain described is a frequent one, but I have no knowledge of a paroxysmal tachycardia having been observed under the same circumstances. It is significant, however, that this rather severe circulatory disturbance occurred in a person with no evident preexisting cardiac disease. It is conceivable that a similar attack might result more easily in a person with a heart already injured—a heart, for example, the seat of widespread myocardial disease, and in that case might bring with it serious or even fatal consequences.

It is for this reason that this case is put on record, as a caution against the use of air in the performance of this test instead of carbon dioxide, as originally recommended by Rubin. The nitrogen, constituting 77 per cent of the injected air, remains unabsorbed in the peritoneal cavity for many hours, whereas carbon dioxide will be absorbed in a comparatively few minutes. The use of carbon dioxide offers but little greater difficulty in the performance of the test and will be a safeguard to the patient.

906 Medical Arts Building.

Special Article

THE TECHNIC OF MEDICATION

A SERIES OF ARTICLES ON THE METHODS OF PRESCRIBING AND PREPARING, THE INDICATIONS FOR, AND THE USES OF VARIOUS MEDICAMENTS *

BERNARD FANTUS, M.D.
Associate Clinical Professor of Medicine, Rush Medical College
CHICAGO

(Continued from page 553)

5. *Smoke Inhalation.*—This is carried on by burning drugs and inspiring the smoke. This time honored procedure has properly fallen into disuse, as the patient must inhale along with the volatile ingredients useless carbon particles that are liable to set up irritation. We now have at our command the means for administering to our patients the former without the latter. As a smoke inhalation for use in asthma, if such a one is desired, may be prescribed powdered stramonium, 2 parts, mixed with potassium nitrate and powdered anise, of each, 1 part.

MOUTH MEDICATION

MEDICATION OF MOUTH AND PHARYNX

The mouth and pharynx, covered by perhaps the least sensitive mucosa of the body as far as irritation is concerned, is the citadel of the sense of taste. Hence agents of disagreeable taste or flavor should not be inflicted, if as good an effect can be obtained in a more pleasant way.

Lozenges and Pastilles.—Troches (lozenges) and pastilles (jujubes), slowly dissolving medicated candies, form wherever applicable a delightful and thorough way of medicating the mouth and throat. Their use is limited, however, because palatable lozenges cannot be made of disagreeably tasting medicines; and to prescribe unpalatable lozenges is decidedly poor technic as there are other ways of applying unpleasant medicaments to these parts that do not force the patient to caress them with his tongue, or to swallow them. Still worse is it to give a patient, in this slowly dissolving form, unpleasant medicaments intended for action elsewhere or on the system at large when so many other methods are at our command for obtaining the same result.

* This is the ninth of a series of articles on "The Technic of Medication." When completed the articles will be assembled in book form.

From what has just been said, it will be easy to see why the lozenges of cubeb, of potassium chlorate, and of sodium bicarbonate have been deleted from the pharmacopeia. Had the remaining two, the troches of tannic acid and the troches of ammonium chloride, also been deleted, no mistake would have been made, for neither of them is really pleasant, and ammonium chloride is intended for action after absorption.

In addition to the active ingredient and flavoring, finely powdered sucrose (sugar) forms the main ingredient of lozenges, with from 2 to 4 per cent of tragacanth or from 5 to 10 per cent of acacia and sufficient water to form a dough. This is rolled out into a sheet of proper thickness, and cut into suitably shaped disks, generally of about 1 Gm. weight. They must then be dried; and it is chiefly because of the time required by the drying that lozenges cannot well be prescribed as extemporaneous preparations. Pastilles differ from lozenges in being made with a sweetened gum-glycerin-gelatin base. The quantity of gelatin ranges from 10 to 40 per cent, about 20 per cent being most commonly used. The larger the proportion of glycerin, the softer the pastille; the larger the proportion of acacia, the harder the pastille. The following might be considered average proportions for these ingredients: gelatin, 20; glycerin, 40; syrup, 20; mucilage of acacia, 30, evaporated to 100 parts. The mass, while hot, is poured into molds of suitable size and shape.

Among lozenges useful for local soothing action on the mouth and throat may be mentioned the N. F. Troches of Elm. The "liquorice gum drops" of commerce may serve as an example of pastilles. Both of these are quite palatable and useful in allaying tickling sensations in the throat, thus lessening cough, especially that which is increased by lying down. Palatable lozenges can also be made of ethyl aminobenzoate (also known as benzocaine or anesthesin) in doses of from 0.01 to 0.02 Gm. that are perfectly harmless, exert an anesthetic action on the mouth and throat, and lessen the sense of irritation in these parts and the resultant coughing. As ethyl aminobenzoate is a surface anesthetic, it will not relieve the deep seated pain of quinsy.

Pigments.—Pigments—liquids that are painted on or swabbed on—form one of the most serviceable methods of medicating the mouth and pharynx. The application is made by means of a cotton applicator or a camel's-hair brush, which should be moist but not dripping, for a drop might fall into the larynx, causing distress and even danger. Most patients can make such applications on themselves, and mothers or nurses may be taught to carry out this maneuver for children. Before applying a medicinal pigment, the general rule of removing exudate from the membrane should be obeyed. Thus, in follicular tonsillitis, an attempt should be made to clear the follicles of exudate with the aid of hydrogen peroxide solution, which may be used as a pigment even in its official strength. An important exception should be made in this regard in connection with diphtheria, in which the forcible removal of the false membrane is entirely uncalled for, as it not only causes bleeding but also is followed by the rapid development of a fresh membrane larger than the first. The removal of the pathologic deposit in other acute pharyngeal inflammations may be followed by painting astringent solutions, among which may be mentioned zinc sulphate, 2 per cent; zinc chloride, 5 per cent; alum, 5 to 10 per cent; tannic acid, 10 to 20 per cent; silver nitrate, 5 to 30 per cent. With all these excepting silver nitrate, glycerin forms a useful addition to the vehicle. Especially is this true with tannic acid, for which glycerin is not only an excellent solvent but also a preservative; the official glycerite of tannic acid, which contains 20 per cent of tannic acid, is a most eligible form of prescribing it. This preparation contains 1 per cent of sodium citrate in order to prevent the possible discoloration of the preparation from reaction between the tannic acid and the trace of iron contained in nearly all the glycerin on the market. In the case of silver nitrate, the curious fact has been noted that painting with a stronger solution is less painful than when a more dilute solution is employed. Painting the throat with a strong solution of silver nitrate, though it increases the distress at first, is usually followed by considerable relief in acute tonsillitis and pharyngitis. The application should be followed immediately by gargling with a salt solution. As this treatment of the throat of a person who has recently had a meal is likely to provoke vomiting, it is well to get ready for emesis before making the application. Silver nitrate painting should not be repeated oftener than at intervals of twenty-four or forty-eight hours. "Canker sores" in the mouth are best treated by touching them with a silver nitrate crystal or a "lunar caustic pencil." One such treatment usually suffices to relieve pain and expedite healing. If not, the application may be repeated in a day or two. An old-fashioned domestic remedy for application to ulcers of the mouth or gums is a mixture of borax (25 per cent) with honey of rose. In view of its alleged specific relation to ulcerative stomatitis, potassium chlorate might be substituted for the borax in the treatment of this condition. Borax glycerin (1:4) gently painted on four times a day is a useful application in thrush.

In granular pharyngitis, the hyperplastic tissue should be touched with caustic after preliminary cocainization. For this purpose, trichloracetic acid U. S. P. is probably best; the white corrosion thus produced is usually exfoliated within three or four days. The raw surfaces left may then with advantage be treated with silver nitrate or other astringent solution.

For thorough treatment of the pharynx it is necessary not only to paint the easily accessible and visible parts but also the nasopharynx, which can be reached by means of a curved wire applicator. In this connection it should be noted that a straight applicator passed through the nose is also capable of reaching the back wall of the nasopharynx.

In chronic pharyngitis, direct treatment of the pharynx, even though faithfully carried out, is often disappointing, owing to the fact that this condition is commonly secondary to nasal or accessary sinus affections, which must be cured in order to be successful in remedying the condition of the pharynx.

Lotions.—A lotion for the parts in front of the anterior pillar of the fauces is called a mouth wash; for those behind it, a gargle. Owing to more or less constant secretion of saliva and its sallowing, remedies do not remain long in the mouth or throat. The use of the remedy must generally be repeated frequently, every hour or oftener, to obtain decided action. It is best not to use food or drink immediately after such local application, so as to permit it to remain longer at the place where the action is desired.

Mouth washes may be fairly strong applications. Alcohol is tolerated by the mucosa of the mouth up to 25 per cent strength, but not stronger. Such lotions are most economically prescribed in concentrated form,

to be diluted with warm water before using. They should, of course, be flavored as pleasantly as possible. Viscid substances and sugars, which are liable to decompose, should be avoided. Gluside (saccharin) is therefore a better sweetening medium for mouth washes than sugar. Though soaps are frequently added to mouth washes, there is not as real a need for them as there is on the skin. Mouth washes are generally made slightly acid or slightly alkaline, astringent, antiseptic or deodorant.

As there is no such thing as a real disinfectant for the mouth, it is poor technic to inflict the various unpleasant tasting antiseptic agents on this membrane. All that can really be expected from a mouth wash, in the direction of mouth hygiene, is that it aid the tooth pick and tooth brush in the physical removal of a culture medium for micro-organisms. Energetic swishing of the mouth wash back and forth and from side to side should be practiced rather than mere rinsing. The most that so-called mouth tinctures or dentifrices can do is to make the ordeal more pleasant by their esthetic qualities.

As dentifrices, the "Mouth Wash" of the N. F. may be chosen, or else an alcoholic solution of oil of peppermint, thymol and saccharin, 1 per cent each. A few drops of either of these solutions are added to warm water.

For the fairly normal mouth, brushing the teeth twice a day, morning and evening, suffices. If employed only once a day, the evening—just before going to bed—is the most important time, so as to leave as little culture medium in the mouth as possible during the long time that sleep interferes with the automatic cleansing of the mouth by salivary secretion and mastication. The diseased mouth should, in addition, be cleansed after each meal or even oftener. When, in stomatitis, the mouth is so sore that the tooth brush cannot be used, a useful aid to the lotion is the cotton-wrapped index finger. Solution of hydrogen peroxide, which on mucous membranes and raw surfaces with albuminous deposits plays a rôle similar to that of soap on the skin, may with advantage be employed as a cleansing lotion when exudate or necrotic material encumbers the cavity. It should be diluted with three or four parts of warm water. Taste correctives should, as a general proposition, not be added to hydrogen peroxide, as most of them are organic materials which, by their oxidation, would by just that much lessen the activity of the peroxide. In foul conditions of the mouth or other cavities, potassium permanganate is an unexcelled deodorant. It is most practically prescribed in the form of crystals, one or two of which added to water are enough to give it the rose to port-wine color that serves as a sufficiently accurate guide to the proper strength of the solution.

As an astringent mouth wash in the treatment of pyorrhea, the official glycerite of tannic acid (20 per cent) might be prescribed, to be diluted with from 10 to 20 parts of warm water to make a 1 to 2 per cent solution. Cinnamon is a good flavor for "covering" the flavor of tannic acid; and cinnamon water may be recommended as a diluent when a lotion ready to use is prescribed. Even in such a case, it is best to prescribe it in double the strength intended for use, so as to give opportunity for the addition of warm water, as washing the mouth with a cold lotion is not pleasant.

Tooth powders, as the "Dentifrice" of the N. F., or their more economic form, tooth pastes, help the process of tooth cleansing by the detergent qualities of a polishing powder. Only most finely pulverized substances, free from sharp edges, such as precipitated chalk, are admissible for this purpose. Pumice stone, though an efficient polisher, is too abrasive to be used frequently in mouth washing. Even chalk had better not be used more than three times a week.

It is impossible to keep a mouth containing carious or abscessed teeth in a clean and hygienic condition, no matter how much cleaning is done. The dentist must first put such a mouth in a cleanable condition.

A gargle is a lotion used for effect on the pharynx. Though the most commonly employed means of treatment of pharyngeal disease, it is on the whole an unsatisfactory method of medication. Its efficiency depends on the patient's expertness in bringing the fluid in intimate contact with the diseased tissue, an act not tantamount to the blowing of copious bubbles in the mouth, which so frequently passes for gargling. Ordinarily, gargles do not secure efficient medication behind the anterior pillars of the fauces. The best way to direct a patient to use a gargle is to have him almost swallow the fluid and reject it with a forward inclination of the head just before it goes down the gullet. When the gargle is thus used, its occasional swallowing is unavoidable. Therefore, the solution should be of such nature that it would not be harmful if swallowed. When the act of swallowing is impaired either by pain or by paresis, gargling is unreliable. In children, efficient gargling is out of the question, and in them medication of throat disease must rely on either the coarse spray thrown against the affected parts or the swallowing of medicated fluid, which can be secured by prescribing lozenges, or else by throat irrigation. The time honored use of a few drops of tincture of ferric chloride diluted with water in the treatment of scarlet fever no doubt owes its chief value to the astringent effect of the medicament in the throat.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CONCENTRATED POLLEN EXTRACTS-SWAN-MYERS (See THE JOURNAL, May 30, 1925, p. 1634).

The following products have been accepted:

Bermuda Grass Concentrated Pollen Extract-Swan-Myers; Costal Sagebrush Concentrated Pollen Extract-Swan-Myers; Elm Concentrated Pollen Extract-Swan-Myers; Johnson Grass Concentrated Pollen Extract-Swan-Myers; Redroot Pigweed Concentrated Pollen Extract-Swan-Myers; Sunflower Concentrated Pollen Extract-Swan-Myers; Sweet Vernal Grass Concentrated Pollen Extract-Swan-Myers; Yellow Dock Concentrated Pollen Extract-Swan-Myers.

Prepared by the method given in THE JOURNAL, May 30, 1925, p. 1634.

Value of Walking.—Walking simply for health is monotonous, uninteresting and often defeats the purpose for which it is taken. Walking which leads to a wholesome interest in other things helps to build the body, mind and spirit; helps to make of them that which is efficient, worth while and prepared. Walking is not a panacea for all ills, a harbor for all times of stress. But so far as exercise can help to cure or to comfort, walking holds for many individuals a measure heaped up and running over.—Wood, T. D., and Dansdill, T.: By-Ways to Health, 1925, p. 112.

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SATURDAY, FEBRUARY 27, 1926

VACCINATION AGAINST TUBERCULOSIS WITH LIVING BACILLI

Animal experimentation and clinical and epidemiologic investigation have laid a broad foundation for the doctrine that childhood infection with tuberculosis makes for adult immunity. In moderately crowded communities, 90 per cent of the population are infected before they reach adult years. Almost never is it known just how or when the infection was acquired, and one cannot even guess at the size of the infecting dose in any single instance. The tuberculin reaction is positive during life, and when the children die of some intercurrent disease, anatomic tuberculosis accounting for the reaction can be found.

Accepting the evidence that a primary infection with recovery and persistence of a latent focus protects against superinfection, and the dictum of men of long experience that "only the tuberculous are immune to tuberculosis," a few investigators have urged that it is illogical to leave to chance and haphazard dosage what might be accomplished with a known dose of an organism of known virulence. Since the days of Pasteur, attenuation of an organism to such a degree that it will not cause serious disease but will still stimulate resistance has been a goal sought for in many diseases, and in a few attained.

Calmette and Guérin believe that in a tubercle bacillus attenuated by thirteen years of growth on bile they have such an organism. Their experiments on calves and monkeys have already been noted in these columns.[1] Recently, with the collaboration of many French and Belgian physicians, they have applied their method to new-born infants, convinced by years of trial that it was harmless and at the same time highly effective in cattle. The vaccinated children all came from an environment in which open tuberculosis close at hand made natural infection seemingly inevitable. The records for 423 infants for the first six months after vaccination have been published.[2] Approximately one third of these children have been exposed within the family. In not one of them has a death occurred from recognized tuberculosis, although thirty have died from other causes. Calmette and his associates have compiled figures showing a mortality of 24 per cent in three years for nonvaccinated children of tuberculous parents living under similar conditions. According to a statement more recently published,[3] 4,517 children have been vaccinated since June, 1924, and further detailed records will appear shortly.

Almost simultaneously with the second report of Calmette and his colleagues, Selter[4] published results in the vaccination of nine children with living virulent tubercle bacilli. Selter is unqualifiedly committed to the theory that no tuberculosis immunity exists without the development of an actual lesion, and furthermore that coincident with this a positive tuberculin reaction should develop. Hence he is surprised by Calmette's published results with an organism that does not set up a lesion or stimulate tuberculin sensitiveness following vaccination. Selter, like many others who have written on this subject in the last fifteen years, believes that this sensitiveness, expressed in a rapid and active reaction to the same virus on reinfection, is the very basis of immunity. Although Calmette's results are empirically impressive, Selter finds them on a theoretical basis entirely unconvincing.

His own protocols leave no question as to the two points at issue, anatomic lesions and tuberculin sensitiveness. Doses of from twelve organisms to 10,000 living, human type tubercle bacilli were used. As in the case of Calmette's subjects, the infants were tuberculin negative when inoculated, but exposed to tuberculosis in their home environment. With the larger doses a nodule developed at the site of inoculation, followed in some instances by ulceration. Except in one case, in which only fifty bacilli were injected, sensitiveness to tuberculin developed more rapidly with the larger than with the smaller doses. In no instance did any detectable impairment of general health follow. One child died of pneumonia three months after the inoculation. At necropsy, no tuberculosis was found in the body except a focus of tuberculous granulation tissue at the inoculation site. Emulsions of the internal organs did not infect guinea-pigs, but tubercle bacilli were recognized by this method in one regional lymph node. In other cases the infants passed through severe intercurrent infections with no signs of an activation of the inoculation tuberculosis. Selter feels that the trial was well grounded on animal experimentation,

1. Artificial Immunization Against Tuberculosis, editorial, J. A. M. A. **76**: 314 (Jan. 29) 1921; The Immunization of Anthropoids Against Tuberculosis, ibid. **85**: 826 (Sept. 12) 1925.

2. Calmette, A.; Guérin, C.; Weill-Hallé, B.; Boquet, A.; Nègre, L.; Wilbert; Leger, M., and Turpin, R.: Essais d'immunisation contre l'infection tuberculeuse, Presse méd. **32**: 553 (July 2) 1924. Calmette, A.; Guérin, C.; Weill-Hallé, B.; Nègre, L.; Boquet, A.; Wilbert, and Turpin, R.: Essai de prémunition par le BCG contre l'infection tuberculeuse de l'homme et des animaux, ibid **33**: 825 (June 20) 1925.

3. Weill-Hallé, B., and Turpin, R.: Premiers essais de vaccination antituberculense par le BCG, Presse méd. **33**: 1655 (Dec. 16) 1925.

4. Selter, H.: Ein Versuch zur Tuberkuloseschutzimpfung des Menschen, Deutsch. med. Wchnschr. **51**: 1181 (July 17) 1925.

and that the method has proved itself harmless. Nothing can be said as yet as to the resistance of these children to reinfection. Selter is cautious to state that the method will not replace "natural" inoculation, but is to be considered in the case of infants exposed to massive infection in their home environment.

The only other trial of artificial infection of children on record is that of Webb and his colleagues.[5] The records are scanty, and the experiment does not seem to have been continued. But it is not surprising that so few of the many who have advocated inoculation in cattle have felt it justifiable to risk the experiment in children. The occasional generalized disease from supposed avirulent inoculation in animals only shows that some of the factors are still unknown. Strains of tubercle bacilli of the same type vary greatly in virulence, and animals react differently to the same dose of the same strain. Obviously, we still need much study of these factors before many men will feel safe in attempting to replace an undeniably uncontrolled yet somehow usually efficient vaccination to which man has involuntarily submitted since he first became gregarious. In the meantime, the practical effect of the vaccinations now on record will be observed with the scientific interest merited by attempts to control one of the most serious diseases that afflict mankind.

UNITED STATES SUPREME COURT DISTRUSTS THE HARRISON NARCOTIC ACT

The Harrison Narcotic Act was held constitutional by the United States Supreme Court in *United States* v. *Doremus*, 249 U. S. 86, decided, March 3, 1919. The defendant offered no argument against constitutionality, and yet four of the nine justices dissented from the judgment. Moreover, the doubt as to its correctness, shown by the divided vote, has increased. In a decision just rendered in *United States* v. *Daugherty*, Jan. 4, 1926, the court said:

> The constitutionality of the Antinarcotic act, touching which this court so sharply divided in *United States* v. *Doremus*, 249 U. S. 86, was not raised below and has not been again considered. The doctrine approved in *Hammer* v. *Dagenhart*, 247 U. S. 251; *Child Labor Tax Case*, 259 U. S. 20; *Hill* v. *Wallace*, 259 U. S. 44, 67, and *Linder* v. *United States*, 268 U. S. 5, may necessitate a review of that question if hereafter properly presented.

The cases pointed out as possibly calling for a review of the decision in the Doremus case include those in which the court held unconstitutional federal statutes designed to regulate, through taxation, child labor and the operation of grain exchanges within the several states.

The Child Labor Tax Law, approved, Feb. 24, 1919, undertook to regulate child labor by taxing industries employing children. Its purpose was federal regulation of child labor, independent of state laws. The analogy between that act and the Harrison Narcotic Act is therefore clear. But the court held the law unconstitutional, saying:

> Taxes are occasionally imposed in the discretion of the legislature on proper subjects with the primary motive of obtaining revenue from them and with the incidental motive of discouraging them by making their continuance onerous. They do not lose their character as taxes because of the incidental motive. But there comes a time in the extension of the penalizing features of the so-called tax when it loses its character as such and becomes a mere penalty with the characteristics of regulation and punishment. Such is the case in law before us. *Child Labor Tax Case*, 259 U. S. 20, decided, May 15, 1922.

The grain exchange case arose out of the Future Trading Act, approved, Aug. 21, 1921, which undertook to tax sales of grain for future delivery, so as to coerce boards of trade and their members into compliance with federal regulations. In holding the act unconstitutional, the United States Supreme Court said:

> It is impossible to escape the conviction, from a full reading of this law, that it was enacted for the purpose of regulating the conduct of business of boards of trade through supervision of the Secretary of Agriculture and the use of an administrative tribunal consisting of that secretary, the Secretary of Commerce, and the Attorney General. . . . The act is in essence and on its face a complete regulation of boards of trade, with a penalty of twenty cents a bushel on all "futures" to coerce boards of trade and their members into compliance. When this purpose is declared in the title of the bill, and is so clear from the effect of the provisions of the bill itself, it leaves no ground upon which the provisions we have been considering can be sustained as a valid exercise of the taxing power. *Hill* v. *Wallace*, 259 U. S. 44, decided, May 15, 1922.

The Harrison Narcotic Act, as clearly shown by the regulations made under it, has for its primary purpose the regulation of traffic in narcotic drugs; the tax is manifestly only an incident, introduced to give at least color of federal jurisdiction. One needs no knowledge of law, therefore, to see that if the principles underlying the unconstitutionality of the Child Labor Tax Law and of the Future Trading Act are applied to determine the constitutionality of the Harrison Narcotic Act, that act is likely to fall. Whether this would work an unmitigated evil is open to question. The act, like the Sheppard-Towner Act, represents federal encroachment on the constitutional rights of the states. As the court said in the Child Labor Tax Case:

> Grant the validity of this law, and all that Congress would need to do, hereafter, in seeking to take over to its control any one of the great number of subjects of public interest, jurisdiction of which the states have never parted with, and which are reserved to them by the tenth amendment, would be to enact a detailed measure of complete regulation of the subject and enforce it by a so-called tax upon departures from it. To give such magic to the word "tax" would be to break down all constitutional limitation of the powers of Congress and completely wipe out the sovereignty of the states. *Child Labor Tax Case*, 259 U. S. 20, decided, May 15, 1922.

Moreover, no satisfactory evidence has yet been adduced to show that the Harrison Narcotic Act has accomplished or is accomplishing its purpose, the suppression

5. Webb, G. B., and Williams, W. W.: Immunity in Tuberculosis: Its Production in Monkeys and Children, J. A. M. A. **57**: 1431, 1911. Webb, G. B., and Gilbert, G. B.: Immunity in Tuberculosis, Further Experiments, ibid. **63**: 1098, 1914.

of the narcotic habit. Statistics adduced to show that narcotic addiction is less prevalent do not and cannot take into account with any degree of accuracy narcotic drugs distributed through underground channels. Nor do such statistics connect even such diminution as some of them purport to show with the operation of the act. The federal act, too, has probably tended to weaken state interest and control in the narcotic situation. If the question now raised by the United States Supreme Court does nothing more than lead to an earnest search to determine the worth of the Harrison Narcotic Act, it will have served a useful purpose.

GLUCOSE AS A FOOD

A layman's dictionary defines sugar as a sweet substance obtained by crystallizing the evaporated juices of certain plants. The chemist, on the other hand, has long employed the term to designate a group of carbohydrates having certain resemblances in molecular structure. Sweetness does not form the foremost criterion for his classification. To the untutored person ordinary sugar is essentially sucrose, the carbohydrate obtained most commonly in commercially pure form from the sugar cane and the sugar beet. He may recognize other carbohydrates as "sugars," but is accustomed to give them a clearly distinguishing designation, such as milk sugar or malt sugar. He will even specify less refined preparations of sucrose itself by similar appellations, designating the source of the material referred to, as in the case of maple sugar. In the latter instance it is the accompanying "impurities" in the form of maple flavor quite as much as the sucrose that determine the culinary use and the descriptive name of this familiar chemically crude "sugar." In popular parlance, the expression sugar has also at times been applied by extension to natural substances resembling sugar in taste and appearance but having neither chemical nor physiologic relationships to it.

In contrast with such carbohydrate substances secured in greater or lesser purity for dietary use directly from natural sources are carbohydrate products prepared through the intervention of chemical reactions in the factory manipulations. Prominent among them is the simple monosaccharide glucose, $C_6H_{12}O_6$, variously designated also as dextrose, grape sugar or corn sugar, which is produced readily by the hydrolysis of starch. Less familiar is the sugar fructose, also described as levulose or fruit sugar, and obtained by the hydrolysis of the polysaccharide inulin, which occurs in some tubers. Thanks to the development of our industries, both glucose and fructose can now be produced in abundance in crystalline form and excellent purity at a low price. Both substances are sweet. According to a recent study,[1] if the sweetness of sucrose is rated as 100, glucose has a value of 74 and fructose of 173. The unique sweetness of fructose (levulose) and the fact that glucose approaches cane sugar so closely in this respect will come as a surprise to most persons.

For reasons that inherent conservatism toward dietary innovations and psychology will for the most part readily explain, a popular prejudice was early developed against the products prepared by hydrolysis of starch and commonly designated as commercial glucose[2] or corn syrup, because of its most common cereal source. The objections have been directed against the circumstance that it is produced by "chemicals," without apparent recognition that the acid employed is necessarily removed before the product is marketed. It may be recalled that our stomachs also secrete a "mineral acid" comparable to what the glucose manufacturer uses to convert his starch to sugar. And glucose has been decried because it is an "artificial" product—without recognition of the fact that glucose is actually derived in the alimentary tract from starch, sucrose, malt sugar and milk sugar, and furthermore that it represents the form in which carbohydrate circulates in the blood. Glucose is thus *par excellence* the physiologic sugar.

With the use of glucose as a food preservative or dietary ingredient, the physician cannot find any fault. Even the cruder products, including some maltose and dextrins from the incomplete conversion of starch, have already found widespread application in American households. The debate at present centers about the provisions of the so-called pure food laws that militate against the application of the term "sugar" to glucose or fructose. It is argued that, since the public is under the impression that every sweet-tasting product derives its sweet taste from cane sugar (sucrose), deception can be avoided only by special notice on the label or by exclusion of other sugars. Legislation involving both requirements is now in force in many places. If a special label is required, the user of glucose (dextrose) is at a distinct disadvantage, since in the public mind such special mention is associated with deleterious substances that should be avoided by a careful and discriminating purchaser.

Legislation now under consideration[3] in Congress aims to modify the interpretation of the federal Food and Drugs Act so that food products shall not be deemed adulterated or misbranded "because of having been preserved or sweetened with an article commonly known as corn sugar, also with an article known as fruit sugar or levulose." From the standpoint of nutrition and health, no reasonable objection can be

1. Sugars and Sweetness, editorial, J. A. M. A. **85**: 977 (Sept. 26) 1925.

2. It should be emphasized that in the new pharmacopeia "glucose" connotes the syrupy substance; the pure substance such as is used for treatment of hyperglycemia following a large dose of insulin is now described under the name dextrose (sometimes called d-glucose; formerly described also under the name anhydrous glucose). This may lead to confusion, as many physicians still speak of "glucose" injections, which under the new pharmacopeia are really "dextrose" injections.

3. S. 481, H. R. 6759 and H. R. 7063. Corn Sugar as Preservative, General News, J. A. M. A. **86**: 494 (Feb. 13) 1926.

offered to this proposal. Care should be exercised, however, that the "sanctity" of the labels on food products shall not be violated in any respect lest the way be paved for abuse and fraudulent adulteration. The time has arrived when the public should be fully informed about the physiologic significance of the sugars and the proper place that each may find in the dietary. The manufacturer should abandon the never wholesome methods of surreptitious practice in the introduction of any sugar in the guise of a "substitute." Glucose no longer needs or deserves to be masked when it appears on the market. Corn sugar and cane sugar may properly become rivals on their intrinsic merits, economically, dietetically and physiologically.

Current Comment

THE MENACE OF ASCARIASIS

"Sanitation is a development of civilization, and war, an antisocial activity, is alike inimical to civilization and to its product, sanitation." This thesis has received verification in more than one experience growing out of the World War. It might be expected that the efforts of preventive medicine would frequently break down here and there, owing to the stress of combat or the economic necessities of the day. There are, however, less obvious sources of hygienic danger. The enforced migrations of large numbers of persons have been instrumental in facilitating the spread of diseases previously more limited geographically. An illustration is afforded in the case of ascariasis, which recent reports indicate to be a far more pressing problem to the countries involved in the recent war than it was before the great conflict.[1] As recently as 1922 it was reported [2] from a French seaport hospital that in the two years following the war one of every three persons operated on vomited ascarids during the days following the operation. To those living in an American community, such a statement seems almost unbelievable. It is important, therefore, to realize the known but somewhat unfamiliar facts about one of the most important intestinal parasites, the eelworm. A single female ascarid can produce as many as 64,000,000 eggs, thick-shelled and extremely resistant to destructive agencies. They survive an exposure of days and months of heat or cold or desiccation. Furthermore, there is no longer any debate that the ascarid of the pig is identical with that of man. Contrary to popular impression, infestation is not merely a problem of the alimentary tract. The larvae hatched in the small intestine migrate extensively, often entering the lung, as Stewart [3] demonstrated ten years ago. Pulmonary ascariasis is a formidable malady. Ascariasis is averted by adequate sanitation. As the ascaris eggs, which may be swallowed and become the sources of human infestation, are not easily destroyed, the most promising preventive measure is that of general sanitation in the disposal of excreta. Ascariasis is largely a matter of community hygiene and individual cleanliness. It ought not to require elaborate measures or propaganda to eradicate this little suspected menace.

1. Cram, E. B.: Ascariasis in Preventive Medicine, Am. J. Trop. Med. 6: 91 (Jan.) 1926.
2. Le Courtois, M.: Thèse de Paris, 1922, cited by Cram.
3. Stewart, F. H.: Brit. M. J. 2: 5 (July 1) 1916.

CHOLESTEROL METABOLISM IN INFANTS

With the growing recognition of the widespread distribution of cholesterol in living organisms and its probable biochemical significance for certain functions, interest in the origin and fate of this organic compound has increased. The importance of the subject, along with evidence for the capacity of animals to synthesize cholesterol, was indicated in a recent issue of THE JOURNAL.[1] The facts there reviewed have been supplemented with observations on human subjects by Fox and Gardner.[2] The data secured from actual balance experiments on breast-fed infants point to an actual utilization of the cholesterol present in the milk; the sterol is at any rate partially absorbed. During the first three months, a normal infant will gain as much as 70 per cent in weight. Cholesterol is an integral component of all the cells of the body, and from a quantitative standpoint a considerable increase in the total sterol content of the body must take place during growth. Fox and Gardner conclude that if the diet were the only source of cholesterol there could be, according to their information, no such marked gain. Consequently, they believe the conclusion inevitable that there must be some organ in the body capable of synthesizing cholesterol.

1. The Synthesis of Cholesterol in the Body, editorial, J. A. M. A. 85: 1066 (Oct. 3) 1925.
2. Fox, F. W., and Gardner, J. A.: The Origin and Destiny of Cholesterol in the Animal Organism, XIV, The Cholesterol Metabolism in Normal Breast-Fed Infants, Proc. Roy. Soc. London B 98: 76, 1925.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Held in Chicago, Feb. 15, 16, 17 and 18, 1926

DR. ARTHUR DEAN BEVAN, Rush Medical College, Chicago, in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 15—MORNING

The Organization of the University Medical School

DR. ARTHUR DEAN BEVAN, Chicago: The unabridged address begins on page 591 of this issue.

Cooperation in Education

CHARLES R. MANN, PH.D., Washington, D. C.: Americans cooperate as a matter of course. In the field of education, every specialized group now has its organization through which the members cooperate. Every cooperating group is always working to achieve something specific. The advance in medical education because of the activities of this council is an impressive case in point. And if medical education could be isolated from other school procedures, the cooperative actions of this group would doubtless soon bring your specialty to a high degree of perfection. But medical education is not isolated. Therefore its progress is conditioned on cooperation between your group and others.

Examination of the activities of a number of groups of specialists shows that there is very little cross cooperation among them. The tendency among the specialist groups to play lone hands is evidenced by such hybrids as business English, calculus for engineers, physics for medical students or commercial arithmetic. The universal excuse is that the mass of subject matter that must be covered in each field is now so vast that it is impossible in the time available to do more than cover the subject matter essential to each specialty. Every specialist group is up against the same impasse; hence, the suggestion that perhaps the specialist groups might help one another. This suggestion is welcome to every one, but we must find a common objective that is specific and dynamic enough to command the attention and the service of all the specialized groups.

Every group has been thinking so intently about the technical requirements of its own specialty that it is difficult for its members to see the requirements of other groups. Besides, it has been the common practice for generations for each group to set up its standards and ruthlessly to weed out all students who did not measure up to them. If Johnnie failed to achieve the academic standards set by the schools, it was usually conceded to be Johnnie's fault.

Recently this attitude of both teachers and parents has changed radically. The change on this matter seems to have taken place very rapidly as a result, in large measure, of the war. The nation was so organized as to realize as far as practicable the man-power principle of placing every man at the work he could do best. It is respectfully suggested that the realization of this present man-power conception of education is a specific objective that is dynamic enough to command the enthusiastic service of every group of specialists.

What must be done to achieve the desired result? During the war, those in charge of sorting, placing and training men discovered that success depended on the answers to two questions; namely, What must be done? and, Who can do it? Answers to the first question were secured by writing occupational specifications, which are objective descriptions of what is actually done in every type of work. When a personnel officer has before him an accurate statement of the things that must be done on any job, he can, by interview, by tests, by study of a man's past, make a reliable estimate as to whether a particular individual can do a specified job well. By analysis of such specifications, school men can determine what are the "fundamentals" of curriculums. Accurate knowledge of what is done on a job is essential for the construction of tests that will reveal reliability whether or not a person can do the job well.

Many think that it is not possible to make a specification of such varied and intricate activities as those of a physician, a clergyman, a college president or an engineer, but surely the English language is equal to describing even the most intricate of activities.

These are but the brass tacks which one gets down to before anything real can be accomplished. The story of how aptitude tests and curriculums are evolved from specifications is fully as inspiring as the story just told.

The University's Function in Medicine

HENRY M. TORY, Edmonton, Alberta: The function of the university in medical education became apparent just as soon as it became clear that biology, physics and chemistry are fundamental in the understanding and treatment of disease; that anatomy, physiology, pathology and bacteriology are but highly specialized branches of biology; that biochemistry is but the connecting link between biology and chemistry; that all science centers around the problem of life in general and human life as its highest manifestations; that the laws of nature of which these great sciences are but the expression are immutable and dependable and are not subject to control by either magic or chance or more human opinions.

The university must insist on the fundamental sciences being taught as university subjects with sufficient intensity to make the student realize that they are not incidental to but fundamental to a proper medical course. The instruction should be in the hands of full-time men.

The courses of study required in these fundamental subjects shall be long and continuous courses covering a sufficient range of material to afford a firm basis for scientific knowledge. The ignorance of many of our college graduates of the true bearing of science to life is evidence that many leave our universities as ignorant as they came. If this were not so, many of the quackeries of today would die a natural death.

There is a sense in which medicine may be regarded as a practical synthesis of the sciences in regard to the life she draws from every science. The standard of examinations must be university standards, not special ones designed to help out the members of a special faculty. If we depart for one moment from the foregoing ideas with respect to teaching and examinations, we can offer no criticism of the follies connected with the many quackeries from which the ignorant and thoughtless are suffering today.

The university should also function in determining the type of men who are allowed to enter the profession of medicine. The proper practice of medicine and surgery demands qualities, mental, moral and emotional, of the very highest order.

The university must function in medicine as the home of research. I do not believe that a university faculty can remain a vital teaching body otherwise. To do this it is absolutely necessary to have a full-time staff for all departments, including, if possible, the clinical departments. To be taught by a real discoverer creates a noble enthusiasm in the minds of ambitious students. If the university is to function completely, the university hospital becomes of necessity a part of the medical school. It is here where the full-time scientist and the clinician meet and where the laboratory worker finds the fruition of his efforts.

The university has another important function to perform which it can do successfully if given an opportunity. I have mentioned medical quackery. The university stimulating scientific study, promoting research and creating a sense of science in the minds of the public is now the ultimate remedy. The first step must be the passing of the power of conducting examinations for the practice of medicine over to boards appointed by the university, thus freeing the medical profession from the charge of personal motive; then the universities will be in a position to say to the legislatures that there must be common standards in scientific subjects. We are prepared to set these standards for you. One other thing the universities must do: they must establish special standards of examination for those who are permitted to appear before the public as specialists.

The Medical Program and Its Reactions

A. B. DINWIDDIE, New Orleans: By medical program I mean the educational program for the training of men and women for the medical profession. The minimum program consists of two years of academic college work, two years of preclinical work in a school of medicine, and two years of clinical work in a school of medicine. The lack of essential continuity in such a program is clearly shown by the fact that a student without violating any accepted procedure may pursue these three divisions of study in three different institutions. This, in some sections of the country, has resulted in extremely unsatisfactory conditions of preparation.

It is proving difficult to apply a satisfactory principle of selection to determine, among students trained at so many colleges and under such widely differing standards, which shall be admitted to the medical schools. If ultimately the universities train a sufficient number of men to fill their first year medical classes, more than one problem will be solved and continuity of training will be established.

One of the greatest problems of the academic college in the university in connection with preliminary medical education is the difficulty in financing the college of liberal arts. The greatest possible emphasis has been laid on the work of the four years of the medical school, with little or no attention to the substructure, the academic basis. We cannot have satisfactorily trained physicians unless we consider the medical program as a whole and give adequate support to every part of it from beginning to end. A student beginning his six year program at an independent college of liberal arts may be unable to get into any medical school as a result

purely of a lack of accommodation, and a student in a two year medical school may find himself unable to complete his medical course because there is no room for him to enter a four year medical school by transfer.

The difficulties of the two-year medical school are becoming acute. The second period of the medical program, namely, that of the preclinical years in the school of medicine, offers perhaps the simplest problem. It is a question of funds, staff and laboratory facilities. The problem of the third or clinical period of the medical program raises questions much more difficult. Medical authorities are not fully agreed on the method of instruction, the character and organization of the staff, and the exact relation of the clinical work to the hospital.

Hospital authorities are not always in agreement with the aims of medical education. Ownership and control of hospitals by medical schools might solve most of these problems, but the enormous cost makes it impossible for most medical schools to reach this solution.

Problems in Medical Education

A. STANLEY MACKENZIE, PH.D., Halifax, N. S.: Frequently it has happened that an enthusiastic and able body of legal, medical or dental men have conceived, gestated and accouched an infant school for the training of men for their profession, and have brought the child to the stage at which they can no longer nourish it, and have then laid it on the doorstep of the university of the community. The pressing appeal to the university to adopt the child which must otherwise perish is usually too strong to be refused. In this way Dalhousie University, founded in 1818 for the purpose of giving a liberal education in arts and science, came by its professional faculties. The explanation of the acquiescence of Dalhousie to such pleas will be obvious when it is stated that Halifax is 800 miles from McGill University in Montreal, which is the nearest large Canadian university.

This explanation has been given in order to lead up to the question confronting Dalhousie in 1911, when it took over the Halifax Medical College, a proprietary school that had been affiliated with the university for many years. The question was what service should a medical school be reasonably expected to give to the local community in which it was located, and to its constituency at large, in addition to the obvious service of imparting as thorough a training as possible to the students whom it prepares for the practice of their profession. The conclusions reached by its authorities, keeping in mind the limited resources at their command, might be thus summarized:

1. To act as a focus of investigation of medical problems, and to give a lead in the formation of public opinion on matters relating to health.
2. To offer to the practicing medical men something in the way of annual "refresher" clinics.
3. To take an active share in the provision of advice and assistance to those citizens of Halifax who were financially unable to pay for proper medical attention.
4. To disseminate knowledge of preventive medicine to the community.
5. To provide opportunities for demonstrating to students the bearing of social and home conditions on health.
6. To inculcate in the coming generation of medical practitioners their responsibility to the people of the community in which they practice for the prevention of ill health and their duty to give freely of their energies in this direction.
7. To provide means through the medical school by which the activities of all agencies engaged in the work of caring for the health of the people might be correlated.
8. To assist the various hospitals in their relations to one another, and to bring the medical school into the necessary close touch and cooperation with all of them.
9. To utilize wherever possible the various medical and allied philanthropic agencies and aid them in avoiding conflicts and duplication of effort.

Perhaps it is too early to speak with assurance of the success of the experiment, but yet there seems no reason why it should fail except for a lack of the spirit of willingness for cooperation among agencies engaged in good work.

(To be continued)

Cancer in Australia.—The mortality rate from cancer in Australia has increased from 26.1 deaths per hundred thousand of mean population in 1870 to 89.1 in 1923. . . . The increase has been very uniform and steady.—Holmes, M, J.: Cancer Mortality in Australia, 1925.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Change of Date of Meeting.—The Medical Association of the State of Alabama has changed the date of its next annual meeting at Mobile to April 27-30.

CALIFORNIA

Smallpox at Los Angeles.—According to newspaper reports, nine new cases of smallpox and one death were reported in Los Angeles, February 21, making the total for cases and deaths for February 255 and forty-nine, respectively.

New Los Angeles General Hospital.—The $8,000,000 Los Angeles Hospital, on which work was recently started, will occupy about 36 acres of ground; the main hospital, for patients acutely ill, will be twelve stories high, and have a capacity of about 1,600 beds; the superintendent of the hospital is Dr. Neal N. Wood.

Illegal Practitioners Fined.—John F. Gebhardt and Frank W. Faircloth pleaded guilty, it is reported, to practicing medicine without a license at Fresno, January 21, and were fined $600 each and given suspended sentences of six months in the county jail. The defendants were said to have defrauded a patient of $500 for "eye treatment."

Personal.—Dr. Thomas O. Burger has been elected president of the Mercer Hospital staff of San Diego for the ensuing year.——Dr. Walter F. Mosher has been appointed city health officer of Holtville.——Mr. Norman Cameron, in charge of the Pacific Coast sales of the Cameron Surgical Specialty Company, died of smallpox in Oakland, February 13, aged 27.——Dr. John I. Clark, Santa Ana, has been elected to the board of directors of the Santa Ana Hospital. ——Dr. John A. Comstock, for the last five years director of the Southwest Museum, Los Angeles, resigned, effective February 1, in order to resume the practice of medicine.

CONNECTICUT

New Editor Appointed.—Professor emeritus Edward S. Dana, Ph.D., has turned over the *American Journal of Science* to Yale University, which will continue to publish the journal in cooperation with Professor Dana. Yale has appointed Ernest Howe of New Haven editor of the journal for the university. The journal was established in New Haven by Benjamin Silliman in 1818, and for more than a century has been owned by the Silliman and Dana families.

Annual Report of President of Yale.—President James R. Angell of Yale University says in his annual report that almost all branches of Yale are now limiting or are about to limit their enrolment; he believes that the university can better serve the country by keeping the student body within a reasonable size by selecting the strongest student group that can be secured, and then giving those men the best education that intelligence can devise. President Angell condemns that method of education which makes the same demand on all students irrespective of intelligence, and proposes a method by which the varying abilities of men are given fuller recognition. Dr. Angell suggests ways to eliminate the additional year or two now spent in educating the American as contrasted to the European student, and proposes a system of guidance and study that will place men during college and afterward in the work for which their abilities fit them.

DISTRICT OF COLUMBIA

Personal.—Surg. Gen. Edward R. Stitt, who was recently operated on for gangrenous appendicitis, has recovered and returned to his desk at the navy department.——Dr. Victor C. Vaughan gave an address at the Army Medical School, January 29, on "The Typhoid Fever Board of the Spanish War."

ILLINOIS

Smallpox at Evanston.—Eight persons with smallpox in Evanston have exposed many others to the disease while at work; the health commissioner urges that persons who have not been vaccinated within the last five years do so at once.

Personal.—Col. Oscar C. Willhite, U. S. Veterans' Bureau, who has been in charge of the veterans' hospital at Knoxville, Iowa, for two years, has been transferred to the Veterans' Bureau Hospital, Great Lakes Naval Training Station.——Dr. John A. Rusk, Tremont, has been appointed in charge of the Tazewell County Hospital and Home.

Hospital News.—Dr. Arthur J. Fletcher has been reelected president of the staff of St. Elizabeth's Hospital, Danville; Edward J. Wheatley, vice president, and Dr. George T. Cass, secretary.——The Evanston Hospital, Evanston, is building a four story building for living quarters for the nonprofessional staff, which will be known as "Hendry House," in honor of William Hendry, who has been chief engineer at the hospital for twenty-five years.

Chicago

School for Crippled Children.—Chicago will erect another school for crippled children at Fifty-First Street and South Artesian Avenue at a cost of $392,000, which will contain twelve classrooms, twenty special rooms, including clinics, shops and nurses rooms, two gymnasiums and an assembly hall; it will be known as the Walter S. Christopher School, and will receive crippled children from the Henderson School and the Fallon School.

Chicago's Typhoid Record.—Between 1916 and 1923, Chicago each year led the list of cities of 500,000 population or more with minimum low death rates for typhoid. In his weekly bulletin, the city health commissioner states that the Chicago death rate for this disease for 1924 and 1925 was 1.5 per hundred thousand of population; from 1906 to 1910 it was 15.8. The control of typhoid in Chicago has progressed steadily since the World's Columbian Exposition in 1893; since 1916, the department of public works and the city health department have been "eternally vigilant" to safeguard Chicago's water supply. The danger of typhoid is always present in the city; in 1923 there was a localized epidemic in the district supplied by the Sixty-Eighth Street pumping station, and in 1924-1925 an outbreak of 129 cases which was attributed to infected oysters. There were 2,828 persons in 1925 who were given free antityphoid vaccination by the health department, and the number of vaccinations is increasing from year to year.

IOWA

Hospital News.—The Methodist Hospital, Sioux City, has opened a new $500,000 building.——The Iowa Lutheran Hospital, Des Moines, and the Iowa Congregational Hospital have merged; the latter will be maintained as a branch.

Personal.—Dr. Bundy Allen, Iowa City, who has been connected with the University of Iowa for about eleven years, has resigned to accept a position as roentgenologist at a hospital being erected in Tampa, Fla.——Dr. Charles L. Hawk has arrived in Iowa City to become a member of the faculty of the University of Iowa College of Medicine, according to the Iowa City press.

Society News.—The annual clinic of the Middle Section of the American Laryngological, Rhinological and Otological Society was concluded at Iowa City, February 9, when the members were guests of the university at a luncheon in the new first unit of the million dollar building program; 160 members registered, making this the largest section meeting the society ever had.——The Dean Clinical Society met, February 8-9, and was addressed, among others, by Walter A. Jessup, Ph.D., president, University of Iowa, at the Memorial Union Building, Iowa City.

LOUISIANA

Health at New Orleans.—Telegraphic returns to the department of commerce from sixty-nine cities with a total population of 29,000,000, for the week ending February 13, indicate that the highest mortality rate in this group (36.5) was for New Orleans, and that the average mortality rate for the group was 14.8. The death rate in New Orleans for the corresponding week last year was 26.

Influenza Outbreak.—The State Board of Health of Louisiana notes that 357 cases of influenza were reported during the seventh week of 1926, whereas only fifty-six cases were reported during the seventh week of 1925. During the sixth week of 1926 there were 261 cases reported. The state board has issued a bulletin which draws attention to the usual complications of influenza and gives general advice as to the precautions against them.

Society News.—The Louisiana State Medical Society enrolled the largest membership the society ever had in 1925.——The Rapides Parish Medical Society has passed a resolution to make it a part of its constitution and by-laws that any member guilty of prescribing narcotics illegally, or of selling or giving away his liquor prescription book, or of writing prescriptions for liquor for any purpose except the treatment of disease, shall be expelled from the society.

Hospital News.—More than $500,000 worth of property left by the late Mrs. Alexina Sinclair McBurney to Charity Hospital, New Orleans, was turned over to that institution, January 22.——The proposed hospital in Algiers, a suburb of New Orleans, is to be known as the Behrman Memorial Hospital in memory of the late mayor of the city. The plans for the hospital have been completed; it will have thirty beds, some of which will be for charity patients and others for those able to pay.——The gift of $10,000 to the Touro Infirmary, New Orleans, in memory of the late Emanuel Sternberger of Greensboro, N. C., is being used to enlarge the department of roentgenology, and to install additional equipment; Dr. Walter F. Henderson will continue as director of the department.——A new six story hospital building is soon to be erected for the St. Joseph Sisters in New Orleans, between Apricot, Burdette, Fig and Pine streets.——The Presbyterian Hospital, New Orleans, purchased three pieces of property on Baronne Street as a site for a medical office building.——The Soniat Memorial Hospital, New Orleans, will soon receive bids for the construction of a fifty bed addition on Annunciation Street; this will be the first of three additions to be made to the hospital, with a total expenditure of $1,225,000.

MAINE

Personal.—Dr. George H. Coombs, Augusta, has been placed in charge, temporarily, of the division of communicable diseases of the state department of health.——Dr. Charles E. Williams has been reelected health officer of the city of Auburn.——Governor Brewster nominated, January 20, the following to be medical examiners: Drs. Blinn W. Russell, Lewistown; Charles W. Kinghorn, Kittery; David E Dolloff, Biddeford.

Maine Leads New England in Tuberculosis Reduction.——Every state in the New England area in 1924 had a tuberculosis death rate lower than the rate for the entire United States. Five years ago the New England death rate for tuberculosis was only 6.4 below the average for the United States, whereas the 1924 death rate was 11.2 below the average for the country. Maine surpassed not only the other New England states in reducing the tuberculosis mortality, but all other states east of the Mississippi River and south of the Great Lakes. The secretary of the New England Conference on Tuberculosis announced, February 11, that the tuberculosis death rate for Maine in 1924 was 68.3 per hundred thousand population. New Hampshire, 74.2; Vermont, 81.4; Connecticut, 81.8; Rhode Island, 84.9; Massachusetts, 86.2, and 90.6 for the country as a whole. The reduction in New England means that about 1,700 lives were saved.

MASSACHUSETTS

Society News.—Dr. Samuel W. Lambert, New York, addressed the Harvard Medical Society, Boston, January 26, at the Peter Bent Brigham Hospital, on "Irregularities of the Heart Action Demonstrated by Motion Pictures of the Heart of the Dog and Turtle."——Prof. Charles Edward A. Winslow, Dr.P.H., Yale University, New Haven, president of the American Public Health Association, spoke on "The Health Department and the Individual" at the annual dinner of the Boston Health League, Hotel Victoria, February 17.——Dr. Horace LoGrasso of the J. N. Adam Memorial Hospital, Perrysburg, New York, addressed the eighth annual meeting of the Trudeau Society of Boston at the Boston Medical Library, February 9, on "Heliotherapy."——Dr. Philip H. Sylvester, Boston, addressed the ninety-fifth meeting of the New England Pediatric Society, February 12, at the Boston Medical Library, on "An Unusual Picture of Primary Blood Disease in an Infant."——The Middlesex East Medical Society recently celebrated its seventy-fifth anniversary at Wakefield.

Miscellaneous Items.—The council of the Massachusetts Medical Society appointed a committee, February 3, to consider all features of the Physicians Home, Inc., and to report at a subsequent meeting; the home requested the state society's cooperation. The council elected Professors William Duane and William I. Bovie, professor and assistant pro-

fessor of biophysics, Harvard University, respectively, honorary fellows of the society.——Dr. Dean Lewis, professor of surgery, Johns Hopkins University Medical School, Baltimore, addressed the Surgical Section of the Suffolk District Medical Society, Boston, February 24, on "The Operative Care of Surgical Cases," and Dr. John Bryant on "Surgical Convalescents: Medical Aspects."——Dr. John O. Polak, professor of obstetrics, Long Island College Hospital, gave an address at the annual banquet of the Boston Dispensary officials, February 2, on "The Relation of the Outpatient Department to Community Health."—George E. Vincent, Ph.D., president, Rockefeller Foundation, New York, gave the Cutter Lecture on "Preventive Medicine" at the Harvard Medical School, February 11, on "Every Doctor a Health Officer."——At the forty-third annual dinner of the New England Medical Society, Jamaica Plain, January 28, the Sarah Bond Scholarship was awarded to Miss Alice Shepard, a senior at the Women's Medical College of Pennsylvania, Philadelphia.——The New England Health Institute will be held at Concord, N. H., May 24-28.——The William Thompson Sedgwick Memorial Lecture, to which the public was invited, was delivered. February 12, in Huntington Hall, Boston, by Dr. Charles V. Chapin, superintendent of health of Providence, R. I., on "Changes in Type of Contagious Diseases."

MICHIGAN

Migdalski Sentenced.—Dr. John F. Migdalski, Detroit, who was recently convicted in circuit court of attempting to attack a 15 year old girl, was sentenced, February 9, it is reported to from five to ten years in prison. The Michigan State Board of Registration in Medicine revoked Migdalski's license, June 10, 1925, for unprofessional conduct and offenses involving moral turpitude. It was reported about that time that he had been arrested four times within a year.

Results of Cancer Week.—The Wayne County Medical Society's cancer committee has issued a statement of the results of clinics held in Detroit during Cancer Week, January 25-29. At eleven hospitals, 2,345 people were examined for cancer, and forty-seven skin lesions previously unsuspected and untreated as cancer were discovered, most of them in the curable stage; eighteen previously undiscovered cancers of the breast were diagnosed, also sixty-one benign tumors of the breast, and eleven cases were examined which will require a microscopic examination to make a diagnosis. There were nine cancers of the lip discovered and five other cases which require further study, and ten benign tumors of the lip, one positive cancer of the tongue and five doubtful cases which will require microscopic examination. Crowds came to the clinics with various gastric complaints; in view of the difficulty of diagnosis, all of these cases, except five, demanded more study than could be given at the clinics. The hundreds of patients who were examined at the clinics showed that public interest was aroused.

MINNESOTA

Winona's Milk Supply.—The milk distributed in the city of Winona has a higher rating than any other city that has been investigated by the office of milk investigations of the U. S. Public Health Service. Richmond, Va., heretofore, had the highest rating in this respect. The milk ordinance of Winona requires all milk to be pasteurized, all cattle at the dairies to be tuberculin tested, and all employees at pasteurization plants to pass a medical examination; milk delivered to the pasteurization plants must come from properly equipped dairies which use approved methods for producing and handling milk. The ordinance was drafted by the health officer of Winona, Dr. William V. Lindsay, with the assistance of the state department of health.

Free Antitoxin.—There are more than 360 distributing stations in Minnesota where physicians may obtain on request any amount of diphtheria antitoxin needed, the only requirement being a proper report of the use of the antitoxin. Physicians have been able to obtain antitoxin on request since 1909, when fifty-five distributing stations were established. The state's appropriation for free antitoxin has been increased from time to time, until it amounted to $15,000 a year in 1925. The state records show that this method alone will not eradicate diphtheria, although it has reduced the death rate; there were 1,667 deaths from diphtheria in the seven year period 1918-1924. Nearly 37 per cent of these deaths were in children under 5 years of age, nearly 31 per cent were in children from 5 to 9 years of age, and about 13 per cent in children from 10 to 14 years of age. The health authorities propose now to supply toxin-antitoxin free of charge to local health officers, physicians and school boards, in order to immunize the children of the state, especially those in the grade school period.

MONTANA

Personal.—Dr. John C. Dunn, Lewistown, has been appointed health officer of Fergus County.——Dr. John H. Fairfield, Great Falls, has been appointed physician for Cascade County.——Dr. Thomas W. Collinson, Scobey, has been appointed health officer for Daniels County.

Reserve Hospital at Billings.—General Hospital no. 145, U. S. Army Reserve, has been allocated to the state of Montana with headquarters in Billings, St. Vincent's Hospital acting as sponsor. Dr. William R. Morrison, Billings, has been designated commander of the reserve hospital with the rank of colonel; Dr. Ferris L. Arnold, Billings, executive officer, with the rank of major; Dr. William G. Richard, Billings, chief of the medical service, with the rank of lieutenant-colonel, and Dr. James I. Wernham, Billings, chief of the surgical service with the rank of lieutenant-colonel.

NEW HAMPSHIRE

Personal.—Dr. Joseph N. Friborg has been reelected city physician at Manchester.——Dr. Patrick J. Kittredge has been appointed city physician of Portsmouth.

Scarlet Fever Epidemics.—In various parts of the state of New Hampshire there are said to be severe outbreaks of scarlet fever; at Lebanon, three deaths had been reported up to February 8, and all public meetings were forbidden, until February 15. According to the New York *Times*, all persons leaving Lebanon were required to be immunized; a policeman stationed at the railroad station required that persons departing show a health certificate. The school authorities at Phillips Exeter Academy, Exeter, placed a ban on school activities until further notice; some schools also in Somersworth are said to have been closed.

NEW JERSEY

"Practicing" Druggists.—Nathan Kessler and Rennatti Spinelli, druggists of Newark, recently pleaded guilty to a charge of practicing medicine without a license; each one paid the penalty.

Society News.—Dr. Richard A. Kern, associate professor of medicine, University of Pennsylvania School of Medicine, Philadelphia, addressed the Atlantic County Medical Society, February 12, Atlantic City, on "The Diagnosis and Treatment of Hay-Fever." Dr. John T. King, Jr., also addressed the society. Dr. David W. Scanlan was elected president; Dr. Richard Bew, vice president, and Dr. Edward F. Uzzell, secretary.——The Burlington County Medical Society, Mount Holly, unanimously passed a resolution, January 13, that an entirely new county hospital building, accommodating at least 100 patients, is now absolutely necessary to meet the needs of the county; Drs. Richard A. Kern and Charles C. Wolferth, both of Philadelphia, addressed the society on "Medical Management of Duodenal Ulcer: Its Indications and Technic," and "The Recent Progress in the Therapy of Heart Disease," respectively.——Dr. Thomas B. Holloway, professor of ophthalmology, University of Pennsylvania School of Medicine, Philadelphia, addressed the Atlantic County Medical Society, January 8, on "The Orbit from the Standpoint of the General Practitioner," and Dr. Emil Novak, Baltimore, on "Uterine Bleeding."——Dr. Thomas K. Lewis delivered his presidential address before the Camden City Medical Society, recently, on "The Middle Aged Heart"; Dr. Beulah S. Hollinshed, Camden, was elected president of the society for 1926.——Dr. James F. Cooper, director, Clinical Research Department, American Birth Control League, New York, addressed the Morris County Medical Society, Morristown, January 19, on "Birth Control."

NEW MEXICO

Smallpox Outbreak.—There has been an outbreak of eleven cases of smallpox in Roosevelt County; some of the patients are school children, and at least one case developed while the child was at school.

Personal.—Dr. Owen E. Puckett has been appointed full-time officer of Eddy County. Dr. Puckett was formerly health officer for Hope, where he practiced medicine for several years.——Dr. Jesse G. Holmes, Alamogardo, has been appointed county health officer of Otero county.——Dr. Nathaniel D. Frazin, Silver City, has been appointed part-time health officer of Grant County, succeeding Dr. Lucien L. Miner, resigned, who has gone to Los Angeles.

Changes in Regulations.—At a meeting of the state board of public welfare, February 8, regulations were adopted governing the sale of shellfish, and those governing the control of communicable diseases were amended. The board now will recognize state certificates of inspection for shellfish only when each container bears the producer's identification mark, and after it has been informed of the results of an inspection made by the U. S. Public Health Service. The regulations become effective, June 1. Among the amendments made to regulations were that no person with active tuberculosis is permitted to teach or supervise children 12 years old or younger, and persons with trachoma are forbidden to accept employment in homes or institutions where there are minor children. It is no longer required to quarantine persons in contact with influenza, but the influenza patient must be isolated and a placard is required.

NEW YORK

Hospital Burned.—The Kingston City Hospital, Kingston, was destroyed by fire, February 20, at a loss of about $100,000; all of the patients were removed in safety to other hospitals.

State Medical Meeting.—The one hundred and twentieth annual meeting of the Medical Society of the State of New York will be at the Waldorf-Astoria, New York, March 29-April 1, under the presidency of Dr. Nathan B. Van Etten. The annual banquet will be Tuesday evening, March 30, and the annual meeting of the house of delegates, Monday afternoon, March 29. There will be a special demonstration Thursday in charge of leading specialists in New York on syphilis, and they will be in constant attendance to conduct the demonstrations; every phase of the syphilis from the primary ulcer to general paresis will be illustrated by patients, specimens, moving pictures, charts and other ways. Among the speakers at the annual meeting will be Dr. George I. Swetlow, Brooklyn, "Neuron Block for the Relief of Pain with a Report as to Its Use in Angina Pectoris"; Dr. William H. Stewart, New York, "Further Advancement in the Technic and Interpretation of Cholecystography by the Oral Method"; Dr. Harry Aranow, New York, "The Use of the Pomeroy Maneuver in the Treatment of Persistent Occipito-Posterior Position"; Dr. Francis G. Blake, New Haven, Conn., "The Treatment of Scarlet Fever with Scarlatinal Antitoxin"; Dr. Charles A. Elsberg, New York City, "The Diagnosis and Localization of Brain Tumors"; Dr. Edward C. Ellett, Memphis, Tenn., "Some Unusual Effects in the Use of Cycloplegics," and Dr. Richard A. Lawrence, Albany, "The Use of Convalescent Serum in the Treatment of Measles."

New York City

Sixth Harvey Lecture.—Dr. Knud Faber, professor of medicine, University of Copenhagen, will deliver the sixth Harvey Society Lecture at the New York Academy of Medicine, March 13, at 8:30; his subject will be "Historical Lines of Therapy."

Hospital News.—The New York Nursery and Child's Hospital expended more than $150,000 last year in providing free care to mothers and babies of Manhattan; 2,243 babies were born at the hospital during the year; 385 mothers and babies in the neighborhood were attended by physicians sent from the hospital; 685 children were cared for while ill, and 589 wards of the county were boarded in private homes under the hospital's supervision. Dr. Edward H. Peaslee was reelected president of the hospital at the annual meeting, February 9.

Personal.—Dr. Isaac Arthur Stoloff has been appointed associate visiting consultant in surgery at the New York City Children's Hospital, Randalls Island.——Dr. John Oberwager, formerly director of health education, New York City Department of Health, has been advanced to the office of general medical expert.——Dr. Willis C. Noble, Jr., has resigned as bacteriologist in charge of the state health department's branch laboratory at 339 East Twenty-Fifth Street.——Dr. Samuel J. Druskin has been elected president for 1926 of the Eastern Medical Society.——Dr. Karl Landsteiner of the Rockefeller Institute, New York, has been elected a foreign member of the Swedish Medical Association.——Graham Lusk, Ph.D., was guest of honor at a dinner at the Waldorf-Astoria to celebrate his sixtieth birthday, given by friends active in the Russell Sage Foundation and the Cornell University Medical College.——About twenty-five members of the Medical Club of Brooklyn attended a dinner in honor of Dr. Frank E. West, January 18, to celebrate his completion of fifty years in the practice of medicine in New York.

OHIO

New Bureau Chief.—Dr. Benjamin S. Stephenson, Cincinnati, has been appointed chief of the bureau of health education in the state department of health to succeed Dr. Harry E. Kleinschmidt, who has been promoted to chief of the division of child hygiene. Dr. Stephenson was born in Ohio, graduating from Boston University Medical School, 1892, and was for more than six years in Porto Rico connected with the U. S. Public Health Service.

Medical Fellowships Available.—The Committee on Medical Fellowships of Western Reserve Medical School, Cleveland, announces that two full-time research fellowships at $1,500 per annum will be available for the academic year 1926-1927. The period of service is not less than ten months, and promising Fellows may be reappointed a second year for $2,000. The appointments are open to properly qualified persons for research in any department of the medical school. Applications should contain brief statements as to previous research training and degrees, together with the nature and plan of work contemplated and letters of recommendation; they should be addressed to the Committee on Medical Fellowships, 2109-2115 Adelbert Road, Cleveland, before April 5.

OKLAHOMA

Superintendent Appointed.—Dr. David D. Paulus, Oklahoma City, has been appointed superintendent of the Oklahoma City Clinic and Wesley Hospital, to succeed Mr. George D. Hansen, resigned.

Society News.—Dr. Arthur S. Risser, Blackwell, president-elect of the Oklahoma State Medical Association, was the principal speaker at the banquet of the Oklahoma County Medical Association, January 9.——Dr. John M. Alford addressed the Oklahoma County Medical Association, January 23, on "Ectopic Pregnancy," and Dr. Richard C. Lowry on "Lateral Sinus Thrombosis of Otitic Origin."——The Oklahoma County Medical Association announces that it will establish permanent headquarters in the medical library of the new Medical Arts Building, Oklahoma City.

PENNSYLVANIA

Society News.—Dr. Isaac A. Abt, Chicago, delivered a postgraduate lecture before the Allegheny County Medical Society, Pittsburgh, February 9, on "The Present Status of Our Knowledge Concerning the Thymus Gland"; Dr. James R. Johnston, Jr., Pittsburgh, addressed the society, February 15, among others, on "The Value of Posterior Colpotomy in Diagnosis and Treatment."——The Elk County Medical Society has unanimously approved a resolution, protesting against the new state law, which requires the annual registration of legally qualified physicians; it is pointed out that the law is primarily to protect unqualified practitioners, and that the legislature failed to do its duty in not appropriating funds for the enforcement of the act.

Philadelphia

University News.—It was announced, February 20, that Mr. and Mrs. Henry Phipps, New York, had given $500,000 to the University of Pennsylvania to be devoted to the Phipps Institute, which was founded for the treatment of tuberculosis. It was also announced that the children of former provost C. C. Harrison had given $100,000 to the University of Pennsylvania to further the interests of the museum. The Phipps' gift was made on condition that the university raise an equal amount.

Society News.—Dr. Arthur C. Morgan has been elected president for 1926 of the Northern Medical Association of Philadelphia.——The Section of Medical History of the College of Physicians, Philadelphia, conducted a program, February 16, on "Medical Medals"; there was an exhibition of medals from various collections. Among the speakers was Dr. Fielding H. Garrison, Medical Corps, U. S. Army.——Dr. George E. de Schweinitz and Dr. Alexander G. Fewell gave "A Clinical Communication on Tobacco Amblyopia and Diabetes" before the Section on Ophthalmology of the College of Physicians, February 18.

RHODE ISLAND

Violations of Medical Practice Act.—During 1925, the Rhode Island State Board of Health investigated forty-six cases of violation of the medical practice act, fifteen of which were brought to court, and of these, ten cases resulted in

convictions; five cases are still pending. Some of the cases, as reported by the board, were as follows:

Dr. Antonio G. Fidanza, 240 Pocasset Avenue, Providence, R. I., not reporting births, fined $10 and costs, Sixth District Court.

Treffie Plant, 92 Cowden Street, Central Falls, abortion, five years state prison, superior court.

Dr. Howard B. Bryer, Natick, not reporting births, fined $10 and costs, Fourth District Court.

Dr. M. J. E. Legris, Phenix, not reporting births, fined $10 and costs, Fourth District Court.

C. S. Altconian, 121 Charles Street, Providence, illegal practice of medicine, fined $25 and costs, Fifth District Court.

William Brown, Warren, giving false testimony in marriage license, fined $50 and costs, Fifth District Court.

Chester A. Lang, Arctic, illegal practice of medicine, chiropractor, fined $10 and costs, Fourth District Court.

Dr. L. J. Harrop, Arctic, not reporting births, fined $10 and costs, Fourth District Court.

Dr. John W. Saunders, Wyoming, drug addict, report to U. S. district attorney; permission to write narcotics taken away.

Dr. James P. Coll, 532 Broad Street, Providence, unprofessional conduct, license revoked.

Dr. Frank R. Jenks, 532 Broad Street, Providence, unprofessional conduct, case pending on good behavior.

Professor Farnum, 166 Broad Street, Providence, illegal practice of medicine, left state.

TENNESSEE

Society Election.—The Tri-State Medical Society, which met in Memphis recently, elected Dr. Fenton L. Husbands of Blytheville, Ark., president for the ensuing year; Drs. Harris T. Collier, McKenzie, Tenn., Walter C. Overstreet, Jonesboro, Ark., and Tobe M. Riddell, Swifton, Miss., vice presidents, and Dr. Arthur F. Cooper was unanimously reelected secretary.

Personal.—Dr. James G. Eblen was elected mayor of Lenoir City, Dec. 10, 1925.——Dr. Andrew F. Richards, who has practiced in Sparta more than thirty years, has accepted a position in the "federal department of health for the state of Tennessee"; he will move to Nashville.——Dr. Frank L. Roberts has been reappointed head of the Gibson County Health Unit.——Clarence Connell, Nashville, has been appointed superintendent of the new Vanderbilt University Hospital, which was recently opened.

TEXAS

Hotel Hospital.—The Adolphus Hotel, Dallas, at which the general headquarters of the American Medical Association will be during the annual session, April 19-23, has a hospital on the third floor equipped for general medical work, including major surgical operations. It was designed for the convenience of guests at a cost of $10,000. Dr. Marvin P. Stone, Dallas, will be in charge of this hospital during the session.

Clean-Up Campaign.—The state board of health, which annually sponsors a state-wide clean-up campaign, has announced the next one to be March 8-April 3. In each county there will be a contest designated "The Cleanest Town Contest," which will be decided by local committees acting as judges. Towns desiring to enter the contest can obtain from the state board of health literature on insect and rodent control and communicable diseases, and posters in limited numbers.

UTAH

Personal.—Dr. Stephen H. Besley, Salt Lake City, has been appointed state prison physician to succeed Dr. George A. Allen, resigned.——Dr. Willard Christophersen has been reappointed health commissioner of Salt Lake City.

Society News.—The excavation work for the new medical arts building, Salt Lake City, has been completed and construction work is expected to start soon. The building will be ten stories high, and among other things, will include an auditorium and a reference library for the use of professional societies.——Dr. Ralph M. Tandowsky addressed the Salt Lake Medical Society, Salt Lake City, recently, on "Serologic Studies of Proteinurias."

WEST VIRGINIA

Epidemic of Catarrhal Jaundice.—At the January meeting of the Kanawha County Medical Society, Charleston, it developed that practically every physician in the society had treated cases of catarrhal jaundice during the preceding few months; there were four students in one grade in the high school ill at one time. The chairman of the publication committee of the West Virgina State Medical Association says it is estimated that there was a total of more than twenty cases of catarrhal jaundice. It is interesting to note that an outbreak of catarrhal jaundice occurred in Illinois last autumn (THE JOURNAL, Nov. 14, 1925).

GENERAL

Gynecological Society Semicentennial.—The annual meeting of the American Gynecological Society, which will be held this year at Stockbridge, Mass., May 20-22, will be the semicentennial celebration. Among the foreign guests will be Dr. T. Tuffier, Paris, and Dr. J. M. Munroe Kerr, Glasgow; other speakers will be Dr. John Whitrige Williams, Baltimore; Dr. John A. Sampson, Albany, N. Y., and Dr. Robert T. Frank, New York.

Bill to Retire Nurses.—Congressman John M. Morin of Pennsylvania has introduced a bill to provide for the retirement of members of the nurse corps of the army and navy. The bill is similar to one which passed the Senate at the last session, and would place these nurses on the same status as officers of the army and navy, for retirement purposes, with pay. The bill provides that the annual pay of a retired nurse shall be 3 per cent of the active base pay which she is receiving at time of retirement, multiplied by the number of years of service; she would also receive an allowance in accordance with the grade she held at the time of retirement. Legislation of this character has heretofore been approved by the Secretary of War and the Secretary of the Navy.

Report of Foundation.—The second annual report of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation shows that fifty-three applications for assistance were received last year, in contrast to thirty-two the year before. During 1925, thirteen new grants were made by the trustees, and one grant of assistance for three years was continued. Four of the investigations assisted in 1925 bore on the general subject of chronic nephritis, as did four of the grants in 1924. Applications for grants for assistance for 1926-1927 should be received before May 15, and include statements as to the character of the research proposed, amount of money requested, and the objects for which it is to be spent. Dr. Francis W. Peabody, Boston City Hospital, Boston, is secretary of the executive committee.

Automobile Fatalities.—New York City reported to the Department of Commerce 1,001 automobile fatalities for 1925; Chicago, 598; Philadelphia, 306; Detroit, 297; Los Angeles, 252; Cleveland, 229. The total number of fatalities in seventy-nine large cities in the United States for the year was 6,370, a daily average of 17.2 for the fifty-three weeks ending January 2. Telegrams from twenty-four cities indicated that 25 per cent of the fatalities in those cities were due to accidents outside the city limits.——Reports of automobile fatalities for the four weeks ending January 30 from seventy-nine large cities showed a total of 434 deaths, as contrasted with 558 for the preceding four weeks. The decrease was probably due, it is said, to the season of the year, as fewer machines are in use in the winter on account of bad weather.

Commonwealth Fund to Construct Rural Hospitals.—An initial appropriation of $350,000 has been made by the Commonwealth Fund, New York, for the construction of two hospitals in rural communities. This marks the beginning of a new project by the fund, which will involve the building of two rural hospitals a year. From among more than fifty applications, Farmville, Va., has been selected as the location of the first of these hospitals, and after March 1, when the fund will establish a division of rural hospitals, it will receive applications from rural communities under certain conditions, the chief of which is that if the application is approved, the fund will contribute two thirds of the cost of construction and equipment of the hospital, while the local community must contribute one third and meet operating and maintenance costs.

Mothers Beyond Thirty-Five.—There were 270,045 women between 35 and 44 years of age who became mothers in 1924 in twenty-eight states, according to the department of commerce. The total number of children ever born to these mothers was 1,708,927, which was an average of 6.7 per mother, and the total number of children living was 1,450,608, or an average of 5.3 per mother. Considering only mothers between 35 and 39 years of age, those who were the wives of coal mine operatives had the highest average number of children (7.4) and the wives of chemists, dentists, physicians, metallurgists, assayers and technical engineers, the lowest average number of children (3.3 each), and the highest number of children living (6) appears for the wives of coal mine operatives, and the lowest average number of living children (2.9) for the wives of dentists and technical engineers. Considering only mothers between 40 and 44 years of age, and only those occupations represented by at least 100 births, the highest average number of children ever born (9.1) appears for the wives of other mine operatives, and the lowest average (4) for the wives of lawyers and judges.

FOREIGN

International Physiology Congress.—It is announced that the twelfth international Congress on Physiology is to convene at Stockholm, Aug. 3-6, 1926. The address of the secretary is Dr. G. Liljestrand, Karolinska Institut, Stockholm, Sweden. Prof. J. E. Johansson is to preside at the meeting.

Leprosy in Japan.—The census of lepers in Japan, recently made by the department of home affairs, showed that the number was 16,261, of whom 11,669 were males and 4,592 females; about 10,000 of them had no means for medical treatment. The government has therefore started a ten year program to enlarge the five prefectural hospitals, which now have a total capacity of 2,080 beds. The appropriation for this work for 1926 amounts to more than 650,000 yen.

Personal.—Dr. Lewis W. Hackett, representative in Italy of the International Health Board of the Rockefeller Foundation, has transferred his office to Palazzetto della Farnesina, 168, Corso Vittorio Emanuele, Rome, Italy.——Prof. R. Bing, Basel, has been invited to lecture on neuropathology at the Liége medical school in March.——A medal was recently presented by a group of friends to Prof. Gaudier, Paris, who is said to have been the pioneer in immediate suture of war wounds.

Deaths in Other Countries

Dr. **James Israel,** surgeon in chief to the Jewish Hospital at Berlin, aged 78. In the last thirty years he specialized in surgery of the kidneys.——Dr. **A. Juramie,** in Algiers, a victim of typhus acquired in professional work.——Dr. **H. J. Vetlesen,** Oslo, a frequent contributor to the literature on internal medicine, aged 74.——Dr. **A. Moussoux,** professor of pediatrics at Bordeaux.——Dr. **J. Fränkel,** Berlin, chief of the orthopedic department in the university surgical clinic (Bier), succumbed to embolism from phlebitis, aged 45.——Dr. **H. Schuster,** Arad, Hungary, aged 73, prominent in hygiene, sanitation, and abdominal surgery.

Government Services

Veterans' Bureau Resignations

The U. S. Veterans' Bureau *Medical Bulletin* for February announces the resignations of the following physicians at the hospitals indicated:

Dr. William M. Bevis, Perry Point, Md., Oct. 31, 1925.
Dr. George C. Jones, Aspinwall, Pa., Nov. 17, 1925.
Dr. Peter S. Mallon, Knoxville, Iowa, Nov. 10, 1925.
Dr. Archie McCallister, Oteen, N. C., Nov. 16, 1925.
Dr. Harold J. Mixson, Algiers, La., Nov. 16, 1925.
Dr. Harry Olin, Jefferson Barracks, Mo., Oct. 25, 1925.
Dr. William L. Orr, Alexandria, La., Nov. 9, 1925.
Dr. George S. Pitcher, Augusta, Ga., Nov. 30, 1925.
Dr. Lewis E. Scharf, Edward Hines Junior Hospital, Oct. 12, 1925.
Dr. Thomas A. Wayland, Aspinwall, Pa., Oct. 19, 1925.
Dr. William F. Willien, Legion, Texas, Sept. 27, 1926.

Army Medical School Graduation

Graduating exercises for the army medical school, army veterinary school and army dental school were held, February 10, at the Army Medical Center, Washington, D. C. Among the speakers were Surg. Gen. Merritte W. Ireland and Major Gen. John L. Hines, chief of staff, who presented the diplomas and medals. There were thirty-six graduates in the medical school. Capt. Frank P. Strome was awarded the Hoff medal and Lieut. William F. De Witt, the Sternberg medal. There were thirteen graduates in the veterinary school and seven in the dental school.

Examination for U. S. Public Health Service

Candidates will be examined for entrance into the regular corps of the U. S. Public Health Service, March 15, at Washington, D. C., Chicago, New Orleans and San Francisco. Requests for permission to take the examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C. Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, with one year of hospital experience or two years in practice. Candidates who pass an oral, written, clinical and physical examination will be recommended for appointment by the president.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 30, 1926.

The Case of Dr. Axham

The action of the general medical council in removing physicians from the medical register is often the subject of criticism in the lay press; but nothing comparable to the campaign for the restoration of Dr. Axham to the register has occurred before. Some years ago the council, becoming aware that the public was being misled by certain qualified physicians who delegated to unqualified employees the treatment of patients, issued a warning notice to the effect that a legally qualified physician who, by his presence, countenance, advice, assistance or cooperation, should enable an unqualified person to carry on practice as if he were qualified and registered, was liable to incur the penalty of erasure from the register. It was found that Dr. Axham was in the habit of administering anesthetics for the bonesetter Mr. Barker. He was summoned before the council and not only admitted the practice but said that he was not prepared to discontinue it. In 1911, accordingly, his name was erased from the register. Probably nothing more would have been heard of the case but for one thing. After the war the government (in other words, the politicians in control) recommended Mr. Barker for the honor of knighthood, which was conferred on him. This put an unanswerable argument into the hands of Dr. Axham's friends. They argued that not only was Mr. Barker's work justified but also Dr. Axham's, and that he was a public benefactor in enabling it to be performed without pain. Then began a campaign of unmeasured denunciation of the council, which the whole lay press pursued with vigor. Even the *Times* followed suit and put the matter moderately as follows: "Dr. Axham, of course, has no case at all. He broke a rule and has paid the penalty. The public, however, is not concerned with the professional point of view. It feels, whether rightly or wrongly, that it has an absolute right to the benefit of any knowledge which may be available, no matter by whom this knowledge has been won. In this respect it does not discriminate between Sir Herbert Barker, for instance, and the president of the general medical council himself. It is convinced, and the evidence is sufficient to justify such conviction, that Sir Herbert Barker has added to the means available for the relief of human suffering. It honors him, therefore, and, with him, those who have assisted his work. Further, it takes the view that such service to humanity outweighs any offense against professional rules which may have been committed." Dr. Axham is now an old man of 86, in poor health, and he has retired from practice. He therefore has no use for a medical qualification but, for the sake of his family, he asked for the removal of a stigma. Even in the medical profession there was a strong feeling that he had been sufficiently punished. The *Lancet* regarded the case as one for clemency. An appeal was made to the medical council, which declared that it could do nothing until one of Dr. Axham's diplomas had been restored to him by one of the two bodies from which he had received them. The case then came before the council of the Royal College of Surgeons, which refused to rescind its resolution of 1911, removing him from membership. But the Royal College of Physicians, Edinburgh, by a majority, resolved "on proof submitted that the said Frederick William Axham has abstained for the last five years from the practices which led to his suspension and will not resume them, and that the said suspension be removed as from this date." The effect of this resolution will be that Dr. Axham can now apply to

the general medical council to have his name replaced on the register, which will probably be done. The decision of the Edinburgh College has been received with a chorus of press approval, but the *Times* regrets that they did not perform "the act of grace" just a little more gracefully. Among the approvals of public men, Bernard Shaw has the following characteristic effusion: "It will put the general medical council in a pretty fix. The only consolation they will have is that on the whole it will rather damage Dr. Axham than anything else; it is getting now so disgraceful to be a registered medical man, and the unregistered men make so much more money. Still, since Dr. Axham apparently wants the diploma back, he has my hearty congratulations."

The Treatment and Spread of Kala-Azar

At the annual conference of medical research workers, recently held at the Calcutta School of Tropical Medicine, it was shown that more progress in combating kala-azar (dumdum fever) in India has been made during the last eighteen months than in the previous twenty years. The treatment has been improved enormously by the use of pentavalent antimony compounds, and the course of treatment can now be reduced to about four weeks, in place of three months. Even more important are discoveries connected with the problem of how kala-azar spreads from man to man. The question that has defied the efforts of many workers for more than twenty years has now been virtually solved. Major Acton of the Calcutta School of Tropical Medicine was the first to draw attention to the close connection between sandflies and oriental sore, the latter being a disease due to a parasite and very similar to kala-azar. Subsequently it was shown that there is a very close relation between the spread of kala-azar and the prevalence of the rural "silver-footed" sandfly, and investigations along these lines have made it appear exceedingly probable that this sandfly, *Phlebotomus argentipes*, is the insect vector of kala-azar from man to man in India.

Arsenic in American Apples.

The contamination of apples imported into this country from America has been reported in a previous letter. Attention was first drawn to this danger by sickness in North London. The local health officer submitted samples of apples bought in the borough of Hampstead to the public analyst, and these were found to contain on the skin 40 parts per million of arsenic with 110 parts of lead. This was due to the spraying of the apples with lead arsenate. The public analyst's report states that a person eating one of these apples, of an average weight of a quarter of a pound, would thereby take a dose of about one-fifteenth grain (4 mg.) of lead arsenate. As a result, the ministry of health issued a warning to local authorities in all parts of the country. Further experiments have proved that the contamination cannot be removed by rain or by washing. It is evident that the metal combines with the proteins of the skin to some extent. The report concludes that it is satisfactory to note that the arsenical contamination has been found to be entirely confined to American apples.

In response to an inquiry from London as to arsenic on apple skins, the United States Department of Agriculture telegraphed from Washington to the Fruit Trades Federation: "Approximately 65 per cent of the commercial apple crop, or about 68,000,000 bushels, has already been consumed in the United States. Only 10 per cent has been exported. No cases of sickness whatever have occurred here." Mr. Edwin Smith, a fruit specialist from the United States Department of Agriculture, who is now investigating the matter in Great Britain, said: "The total apple consumption in the United States this year is put at 164,616,000 bushels. Of this, 95,727,000 bushels is the commercial or marketable crop. For the last thirty years the size of the apple crop has not changed greatly, and during this time all commercial apple districts have used the same general character of spray control in combating the codling moth. It is estimated that during this time no fewer than 900,000,000 barrels of apples thus produced have been eaten. We have no record whatever of serious illness from this source throughout the whole thirty years."

Leprosy in the Empire

A meeting of the general committee of the British Empire Leprosy Relief Association was held at the India office when the first annual report was adopted. Lord Chelmsford, chairman of the general committee, said that the appeal that was launched at the Mansion House two years ago was a lamentable failure, the cause in the main being financial stringency. One argument used was that, as the appeal was made on behalf of the empire, and as the majority of the lepers were to be found in India, the appeal ought to be made to India in the first place, and when they had got the support of the Indian governments they could seek the support of the people at home. They had followed that advice. The response in India was amazingly good. They had received something like $725,000. As the original appeal was for $1,250,000, and they had received over $750,000 in India and at home, they were now going forward with a renewed appeal for the remaining $500,000. Sir Leonard Rogers said that important work was accomplished last year. The medical committee had adopted a definite policy with regard to different parts of the empire, which had been approved by the colonial office, and a memorandum outlining this policy had been distributed.

The Treatment of Leprosy

The report of the British Empire Leprosy Relief Association for 1925 states that leprosy was formerly regarded as incurable, but recent researches have led to the discovery of methods of treatment which, if given at a sufficiently early stage, cause the disappearance of all signs of the disease. It is now certain that leprosy can be eradicated from any country where adequate arrangements are made for the proper treatment of all persons contracting the disease. Sir Leonard Rogers, medical secretary of the association, describes the present position as follows: Although when taken in its early stages one could cause the disappearance of all signs of the disease, it was impossible to say whether the bacillus had been completely eradicated from the system. The new cure was also a long one, as it would take a year or more and was only a modification of the older method. Dr. E. Muir of the Calcutta School of Tropical Medicine had made a further important practical advance in the treatment. Ethyl esters, obtained from the oil from the ripe seeds of the southern Indian tree *Hydnocarpus wightiana*, were used for the treatment, but Dr. Muir found that the pure oil from the ripe seeds of the tree was as efficacious, and it was therefore possible to obtain the treatment at one-tenth the cost, and great quantities of the seeds were being sent out by the association. Research is still going on, and great things are expected from the combination of these compounds with certain metals. One of the most important developments is gradual conversion of the old leper asylums into sanatoriums for the treatment of early cases. Contrary to the general belief, leprosy is not very infectious, and under good sanitary and climatic conditions infection is practically unknown. The realization that early stages of the disease can be cured has brought far more patients to be treated, as formerly they never came until the disease had run its course for about five years. On the lowest computation there are 300,000 lepers in India and other British possessions, and the real number is probably far greater. Favorable reports continue to be received of the beneficial results of the new treatment.

PARIS

(From Our Regular Correspondent)

Feb. 1, 1926.

The Prophylaxis of Leprosy

Following the communication presented to the Academy of Medicine by Jeanselme, the Commission de la lèpre edited the following conclusions, which the academy adopted after discussion:

1. Leprosy should be included in the list of notifiable diseases. The attention of the minister of public health should be directed to the importance of requiring the observation of the maritime sanitary police regulation to the effect that the colonial administration advise the sanitary authorities of the cities of the future residence of leprous persons.

2. Leprous persons living at home, and also persons of their entourage, should be subjected at short intervals to clinical and bacteriologic examinations by a competent physician appointed by the departmental inspector of public health and instructed by the latter to specify in his report the prophylactic measures indicated in each particular case.

3. Leprous persons should be prohibited from following certain trades or occupations; more particularly, those of baker, butcher, cook, laundryman, tailor, barber, cab driver, domestic, teacher, physician, pharmacist, midwife and nurse.

4. At certain points, preferably in the vicinity of dermatologic clinics (at universities or otherwise), centers should be established for the concentration and treatment of lepers, irrespective of their social condition.

5. An agreement should be entered into with the countries having many lepers, with a view to preventing leprous persons from emigrating to France.

Antituberculosis Crusade in the Prefecture of the Seine

From the report presented last November by M. Armand Guillon to the Congress of Associations of Social Hygiene, I have taken the following figures, which give an idea of the activities of the Office d'hygiène sociale, of which Guillon is the director for the prefecture of the Seine:

In the forty-two public dispensaries of Paris and the Seine district, 50,692 persons have been enrolled. A diagnosis of tuberculosis was reached in 28,916 cases (18,699 adults, among whom were 8,346 with tubercle bacilli, and 10,217 children, 168 of whom presented tubercle bacilli). There were more than 50,000 persons to be followed up and supervised; more than 30,000 were recognized as infected. More than 9,000 persons were recognized as being in an infective state, who, for months and sometimes for years, may spread the disease in their entourage. Therefore they must be hospitalized or put in a sanatorium; must be educated and instructed in measures of prophylaxis that will prevent them from endangering others, and must be kept separated from children. That, M. Guillon stated, was the task that had been accomplished. From a report issued recently by the Comité national de défense contre la tuberculose, he quoted the statement that the annual tuberculosis mortality rate for Paris before the war was 33.9 per 10,000 inhabitants, but that in recent years it had dropped to 23.6. These figures furnish unquestionable evidence of the excellent results accomplished by the antituberculosis campaign in recent years.

The Immigration of Alien Insane

M. Marie recently communicated to the Société de médecine of Paris statistics on the number and character of foreign psychopaths admitted to the Asile clinique. During eighteen months, almost a thousand foreign psychopaths, belonging to thirty-two different nationalities and coming from all parts of the world, have been interned in Paris. The majority of these are unable to express themselves in French. It is evident that they were mentally abnormal when they left their native country. On reaching France, they immediately become public charges—for the most part, permanently. At 20 francs a day (the present tariff rate at Sainte-Anne Hospital), 20,000 francs daily is thus added to the burden of the taxpayers. The average age of these patients is 27 and their life expectancy is around thirty years. The total cost of supporting these thousand men for thirty years would be enormous.

M. Remlinger reported to the academy, November 30, the immigration of large numbers of physically infirm, who also become a burden to the Assistance publique and, in addition, introduce new diseases into France (leprosy, filariasis, trachoma, encephalitis and myelitis). The increasing number of mentally and physically unfit immigrants requires stricter prophylactic measures and greater circumspection in eliminating undesirables at points of entry. Measures similar to those employed in the United States seem imperative. The scientific and medical societies of France should adopt resolutions looking toward the passage of the required legislation.

The Rockefeller Mission and French Efforts to Combat Tuberculosis

Dr. A. Bruno has recently communicated to the Faculté de médecine of Paris a book in which he gives an account of the work of the Rockefeller Mission. The country derived great benefit during the five years in which the Rockefeller Mission was active in France. As Dr. Bruno was attached to the mission from the outset, he could sum up the benefits derived by France from the American movement, as it was carried out in collaboration with the French societies. The Rockefeller Mission recognized the lack of coordination between the existing societies, and its first effort was to establish an organization in which the antituberculosis dispensary played the principal part. It gave financial support to the newly created dispensaries and appointed a personnel composed of physicians and visiting nurses who had been trained for the medicosocial work that lay before them. The French learned from the mission to utilize the card index system for medical and social records, to render monthly reports, and to apply the budget plan to dispensary administration. They learned also the American method of bringing propaganda before the masses, not only in the urban centers but also in the most remote sections of the country. When the Rockefeller Mission closed its work in France, it turned over the succession to the Comité national de défense contre la tuberculose. The book by Dr. Bruno has reminded us of the debt of gratitude that France owes to the Rockefeller Mission. It is proper to call these events to mind at this time, when the results of the happy collaboration are beginning to bear their fruit.

GENEVA

(From Our Regular Correspondent)

Feb. 5, 1926.

Bronchiectasis

The Revilloid-Julliard lecture was delivered to the Geneva Medical Society, Dec. 3, 1925, by Prof. Emile Sergent of Paris, who spoke on the subject of "The Diagnosis and Treatment of Bronchiectasis." The following abstract is from the as yet unpublished manuscript of the lecture:

The lipiodol radiodiagnostic method makes possible the diagnosis of bronchiectasis, as Sergent showed by numerous roentgenograms. The technic is as follows: After local anesthesia with procaine injected in the cricothyroid space, the needle is left in situ and from 30 to 40 cc. of lipiodol is injected. The patient should lie in such a position that the lipiodol tends to reach the suspected area in the lung. During the injection the subject breathes deeply in order to aspirate the solution, and if the anesthesia has been properly done

there is little tendency to cough. The roentgenogram should be taken immediately after the injection. The clinical diagnosis of bronchiectasis is occasionally difficult because of complications and because none of the symptoms or signs are distinctive. After discussing the various types of bronchiectasis as revealed by lipiodol radiodiagnosis, Sergent referred to mistaken interpretation of the roentgenogram. A clinical examination may suggest bronchiectasis and the lipiodol radio method reveal normal bronchi. If one is not sufficiently skilled, one may conclude that there is no bronchial dilatation. But examination should be repeated a few days later. The amount of lipiodol injected should not be more than 40 cc. Since this amount is not sufficient to fill the bronchial tree, it is possible that the lipiodol does not penetrate the area of bronchiectasis. The reason for this may be that the patient was not in a suitable position, that the lipiodol was not sufficiently aspirated or that a collection of pus or a stenosis prevented the solution from entering the affected bronchi. Examination after evacuation of the pus and with the other conditions properly adjusted may give the characteristic images of bronchiectasis. If the images obtained are still negative, bronchiectasis does not exist.

On the other hand, abnormal bronchial images may be mistaken for bronchiectasis when it does not exist. The cylindric, "pigeon's nest" and "basin-shaped" images of dilated bronchi are those most liable to cause errors of interpretation. However, bronchi containing lipiodol may appear enlarged and distended when they are near the thoracic wall over which the roentgen-ray film was placed, and may offer a normal aspect when the film is placed over the opposite thoracic wall. The caliber of the bronchi, without consideration of other factors, has no pathologic significance. Not only are dilated bronchi enlarged: their outline is less regular and more sinuous than normal; their arrangement is changed, the bronchi being compressed in a conglomerate mass. The last remark is important, because in chronic bronchopathies and pneumopathies accompanied by sclerosis the roentgenogram reveals disordered topography of the bronchial arborizations. The same condition is met at the periphery of certain encysted collections. It must be considered, also, in the differential diagnosis between the cavities occurring in pulmonary abscess and encysted pleurisy and the false cavities of bronchiectasis.

Medical treatment—stock vaccines and autovaccines—has not been successful. In appropriate cases, however, antisyphilitic treatment may be successful if begun early. Surgical treatment offers five procedures: artificial pneumothorax, extrapleural compression and thoracoplasty, lobectomy, pneumotomy and phrenicectomy. Artificial pneumothorax is powerless to produce collapse of the dilated bronchi, excepting in very recent cases of bronchiectasis, before dense pulmonary sclerosis has developed. Extrapleural compression may be indicated when the bronchiectasis exists in one lobe only, while extrapleural thoracoplasty deals with lesions occupying the entire lung. Pneumotomy is dangerous and is indicated only in cases with large pus pockets. Later this procedure must be completed by extrapleural compression, extrapleural thoracoplasty or lobectomy, an operation advised by some when the lesions are limited to one lobe. But lobectomy is dangerous and technically difficult. It has so far given a mortality of from 40 to 50 per cent, while in those patients who survive, only 7 per cent are completely cured and about 7 per cent greatly improved. It can be considered only in the cases of young and resistant subjects. Phrenicectomy is safe and effective and is likely to be used extensively in the future. Its object is to produce passive retraction of the lung. Like extrapleural thoracoplasty, phrenicectomy is indicated in the presence of the retractile sclerosis which plays an important part in bronchiectasis. In phrenicectomy the base of the lung is compressed by ascent of the paralyzed diaphragm and abdominal viscera, but the operation is indicated only when the lesions are in the pulmonary base.

Except in very favorable cases, the ascent of the diaphragm may not be marked. Still, the expectoration decreases and if the temperature was raised it drops to normal. In favorable cases, phrenicectomy will effect a cure; otherwise it may only be preparatory to other measures.

BERLIN

(From Our Regular Correspondent)

Jan. 9, 1926.

Interruption of Pregnancy from Eugenic Indications

In the auditorium of the Langenbeck-Virchow-Haus, recently, Dr. Max Hirsch, gynecologist of Berlin, championed the interruption of pregnancy not only for medical but also for eugenic reasons, whereas Prof. Dr. Kahl, jurist, rejected eugenic indications. A general discussion followed the somewhat heated remarks of the opposing speakers.

According to the present penal code, interruption of pregnancy to save the life of the mother is still in the class with criminal abortion, although, as a rule, the courts do not interfere unless it is a borderline case. About fifty years ago, when the present penal code was written, famous physicians had only one induced abortion out of 25,000, or even 100,000, births. With the advance of science, there were more cases of interrupted pregnancy when the life of the mother was endangered. But abortion in Germany is still, from the legal standpoint, an "intentional bodily injury." Dr. Hirsch originally held the view that the physician needed no direct legal protection for his intervention; that he was best protected by a careful inquiry into the case and by transferring the operation from the secrecy of the private home to the publicity of a clinic. But he now considers that, while induced abortion is a form of therapeutic treatment, it violates the legal rights of the unborn child. He demands therefore the legalization of interruption of pregnancy for medical reasons, by the penal code. The law should, he thinks, include eugenic indications. In the opinion of Hirsch, the present beliefs with reference to hereditary transmission of disease would bring the following affections under eugenic indications: retinitis pigmentosa, amaurotic idiocy, dementia praecox, manic-depressive insanity, Huntington's chorea and essential epilepsy.

Before deciding on an interruption of pregnancy for eugenic reasons, consultation with a specialist in the respective field of medicine should be required. Hirsch advises the insertion of the following provision in the penal code: "The interruption of pregnancy shall be exempt from punishment provided it is performed by a physician in accordance with the teachings of medical science."

Hirsch's views were opposed by Geheimrat Kahl: Physicians are not agreed as to whether or not offspring of manic-depressive parents may be absolutely healthy. Induced abortion from eugenic indications should not be permitted because such a right would amount to organization for the destruction of human life, which lies outside the province of a modern civilized state. Kahl denies the right of the state to destroy worthless life, even though such act might accrue to the benefit of the people as a whole; nor has the state the right to give to any profession permission to destroy human life the fate of which is entirely uncertain. Legislators are not under obligation to take note of the latest results of medical progress in preparing the nation's laws; then, too, eugenics as a science is not based as yet on firmly established findings. Kahl closed his address, which was well received, with the words: "It may be that my ideas are not abreast of the times, but I must follow my scientific convictions and my juristic conscience. I therefore utter this general appeal: Have more respect for the sacredness of motherhood!"

In the general discussion that followed the addresses, in which hygienists, gynecologists, jurists and devotees of hereditary science took part, most of the speakers betrayed a leaning toward the attitude of Geheimrat Kahl. It was generally agreed, however, that definite provisions should be enacted with reference to purely medical indications, and that it would be an advantage to the medical profession to have sharp control exercised. If eugenic indications should be recognized to a limited extent, the necessary measures to prevent abuse should be adopted. Professor Baur expressed the opinion that of all eugenic measures the interruption of pregnancy was the least to be recommended.

Neurosis in Relation to Natural Endowments

At the Congress on the Psychology of the Individual, recently held in Berlin, Alfred Adler, psychanalyst of Vienna, gave an address on "Neurosis in Relation to Endowments." In his researches on neurosis, Adler was originally a pupil of Freud, to whom he is indebted for many of his fundamental ideas. When, however, Freud went over entirely to sexual symbolism, Adler went his own way. For Adler the central influence in neurosis is the feeling of inferiority. The origin of that attitude goes back to the period between the third and the fifth year, in which the developing ego first forms its scheme of categories into which it fits, as they arise, the manifestations of human existence. The influence of this earliest substratum of life's experience is so lasting that the individual is able to derive little benefit from the experiences of later life. As a rule, there is reflected in the content of the earliest recollections the tendency that later, when fully developed, led to the neurosis. The person who is a victim of the inferiority complex thinks that he is incapable of coping with the difficulties of normal life. As a consequence, he subconsciously decides to have recourse to a neurosis, sickness, invalidism, in order to avoid the tasks of a definite calling or occupation, social obligations, and the duty of raising a family. In the face of such tasks and duties he shirks all responsibility. On the other hand, he asserts a certain active domination over his entourage, who think of him as being "ill" and entitled to special consideration. While the goal of the normal person is to perform some useful task, to accomplish something worth while, the aim of the neurotic seems to be to assert his superiority over others; and, it may be added, superiority gained by illegitimate means, a surreptitiously acquired superiority. According to Adler, about 98 per cent of the inhabitants of civilized countries today show some neurotic traits. Manifestations of the inferiority complex alone, without the pathologic endeavor to assert one's superiority, never constitute true neurosis, Adler emphasizes. The recited interpretation of the nervous type of character gives rise to important considerations for the school and the home. The modern tendency in civilized countries to preserve and uplift the weak and the tender (the baby is today the master of the household; everybody else has to give way) is associated with certain dangers. The educator should make it clear to the child that it cannot escape responsibilities. His second task is to plant in the child's mind a faith in himself and in his destiny. Adler holds the view that in our educational system differences in endowments are allowed to play too big a part, and he condemns the practice of holding up the phenomenal performances of the few great individuals as the standard for all. He fears that it discourages more than it helps. In the precept "it is more blessed to give than to receive" Adler sees the summit of psychotherapeutic wisdom, if it is interpreted in the proper intellectual, or spiritual, sense. The highest goal of the educator should be to develop the giving spirit in man. With this view of life, even those with limited endowments can give to human existence a high personal value.

Marriages

ALBERT J. HODGSON, Waukesha, Wis., to Miss Flora Christensen of Minnesota, at Jupiter, Fla., in November, 1925.

JOHN A. JOHNSTON to Miss Rosemary Kernan, both of Quebec, Que., Canada, at Baltimore, February 10.

ERNEST EMILE ALLGEYER, New Orleans, to Mrs. Marion Gustine Clark of Chicago, February 10.

THOMAS F. LOUGHLIN, Hartford, Wis., to Miss Meta Bahde of Green Bay, Nov. 24, 1925.

ERNEST SPRINGER, Boston, to Miss Elsa Anna Cohen of Brookline, January 5.

Deaths

Irvin Hardy ✠ Morgantown, W. Va.; Maryland Medical College, Baltimore, 1899; College of Physicians and Surgeons, Baltimore, 1903; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1909; professor of principles and practice of surgery and formerly instructor in minor surgery and clinical professor of surgery, West Virginia University School of Medicine, Morgantown; surgeon in charge, Allegheny Heights Hospital, Davis, 1904-1914, and the City Hospital, 1914-1925; aged 52; died, February 3, at the Western Pennsylvania Hospital, Pittsburgh, of heart disease.

Henry Joseph Perry ✠ Boston; Medical School of Harvard University, Boston, 1896; associate professor of dermatology, Tufts College Medical School, Boston, and formerly assistant in bacteriology at his alma mater and the Massachusetts College of Pharmacy; member of the American Urological Association and president of the New England Dermatological Society; at one time member of the school board; on the staff of Evangeline Booth Hospital; aged 55; died, February 4, at Needham.

George Burbank Somers ✠ San Francisco; Cooper Medical College, San Francisco, 1888; formerly adjunct professor of gynecology, and professor of gynecology at his alma mater; clinical professor of gynecology at Stanford University Medical School, since 1911; chief surgeon, San Francisco Emergency Hospital, 1891-1895; superintendent of the Lane and Stanford University hospitals; aged 63; died, February 21, of epidemic encephalitis.

Donly Curtis Hawley ✠ Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1884; trustee at his alma mater; member of the American Proctologic Society; mayor of Burlington, 1901-1902; formerly member of the state legislature; president of the American Academy of Medicine, 1905-1906; on the staffs of the Fanny Allen, Mary Fletcher and De Goesbriand hospitals; aged 70; died, January 27, at Daytona, Fla.

Joseph O. Stillson ✠ Indianapolis; Miami Medical College, Cincinnati, 1873; formerly professor of ophthalmology and otolaryngology, Central College of Physicians and Surgeons, Indianapolis; member of the Indiana Academy of Ophthalmology and Oto-Laryngology; at one time member of the board of health; on the staff of the Indianapolis City Hospital; aged 75; died, January 28, at the Methodist Hospital, of lobar pneumonia.

Manly J. Sandborn ✠ Appleton, Wis.; Northwestern University Medical School, Chicago, 1896; member of the Chicago Roentgen Society and president of the Radiological Society of North America; chairman of the city board of health; on the staff and director of the roentgen-ray department of St. Elizabeth's Hospital; aged 56; died, February 21, at a local hospital, following an appendectomy.

David Clark, Springfield, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1869; member of the Massachusetts Medical Society; Civil War veteran; for many years and at the time of his death was a member of the board of managers of the Wesson Maternity Hospital; aged 82; died, January 29, of heart disease.

Amos Clark Walker, Fort Worth, Texas; Bellevue Hospital Medical College, New York, 1873; formerly emeritus professor of clinical surgery, Fort Worth School of Medicine, Medical Department of Texas Christian University, Fort Worth; at one time on the staff of the Protestant Sanitarium; aged 74; died, January 13.

James Walker, Mendenhall, Pa.; Jefferson Medical College of Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; formerly on the staffs of the Delaware and St. Michael's hospitals, Wilmington, Del.; aged 58; died, January 7, following an operation.

James Morgan Taylor, Glasgow, Ky.; University of Louisville School of Medicine, 1878; past president and secretary of the Barren County Medical Society; for several years county health officer; aged 77; died, Dec. 11, 1925, in Louisville, of senility.

Harry Barr Snavely, Lancaster, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1888; formerly a druggist; at one time on the staff of the Lancaster General Hospital; aged 61; died suddenly, January 29, of heart disease.

Anthony Krygowski ⊕ Chicago; Chicago Homeopathic Medical College, 1894; Harvey Medical College, Chicago, 1896; Hahnemann Medical College and Hospital, Chicago, 1905; aged 56; died, February 6, of myocarditis, diabetes and nephritis.

John Livingston Burisch ⊕ Worcester, Mass.; Medical School of Harvard University, Boston, 1923; formerly on the staff of the Fairlawn Hospital; aged 28; died, January 13, at the Worcester City Hospital, of cerebral hemorrhage.

Giovanni Mecchella, Brooklyn; University of Naples, Italy, 1898; member of the Medical Society of the State of New York; aged 52; died in November, 1925, of bronchopneumonia and influenza.

James Washington Gilbert, Verona, Miss.; Bellevue Hospital Medical College, New York, 1870; Confederate veteran; for several years health officer of Lee County; aged 80; died, January 19.

Eliot Callender Du Mars, Los Angeles; Washington University Medical School, St. Louis, 1906; formerly a practitioner in Illinois; aged 42; died, Dec. 30, 1925, of tuberculosis.

James Elbert Pennington, Miami, Fla.; Atlantic College of Physicians and Surgeons, 1901; served during the World War; formerly mayor of Wellborn; aged 49; died, January 30.

Benjamin Rel Van Doozer, Santa Barbara, Calif.; Chicago Medical College, 1868; formerly a practitioner in Chicago; aged 82; died, Dec. 29, 1925, at Oakland, of bronchopneumonia.

Agnes Hancock Hertzler Huebert ⊕ Halstead, Kan.; University of Kansas School of Medicine, Rosedale, 1920; on the staff of the Halstead Hospital; aged 30; died, Nov. 27, 1925.

Edwin Barclay Miller, Altoona, Pa.; Jefferson Medical College of Philadelphia, 1906; member of the Medical Society of the State of Pennsylvania; aged 42; died, Nov. 15, 1925.

Eli James Barrick, Toronto, Ont., Canada; Victoria University Medical Department, 1866; L.R.C.P., London, 1866; M.R.C.S., England, 1867; aged 87; died, Dec. 17, 1925.

Joseph Ariel Stolze, Wausau, Wis.; University of Pennsylvania School of Medicine, Philadelphia, 1921; served during the World War; aged 29; died, Nov. 28, 1925.

Calvin Dix Horton, Calmar, Iowa; State University of Iowa College of Medicine, Iowa City, 1894; aged 60; died, January 24, following a long illness.

Henry Hiram Jewell ⊕ Nashua, N. H.; Hahnemann Medical College and Hospital, Chicago, 1882; aged 68; died, January 31, at St. Joseph's Hospital.

Henry F. Carpenter, Santa Clara, Calif. (licensed, California, 1876); aged 91; died, Oct. 8, 1925, at San Jose, of chronic endocarditis.

Henson H. Cross, Los Angeles; College of Physicians and Surgeons, Keokuk, 1883; aged 92; died, Dec. 20, 1925, of influenza.

Bertram Franklin Bailey, Buchanan, Mich.; Chicago College of Medicine and Surgery, 1905; aged 52; died, January 20.

William W. Gamble, Burlingame, Calif.; Homeopathic Medical College of Missouri, 1881; aged 86; died, Nov. 25, 1925.

Charles W. Hardman, Laton, Calif.; Rush Medical College, Chicago, 1878; aged 71; died, at Riverdale, Dec. 13, 1925.

Samuel H. Braden, Elsmore, Kan.; College of Physicians and Surgeons, Keokuk, 1886; aged 70; died, Nov. 28, 1925.

J. Seldon Sands, Bristol, Pa.; Jefferson Medical College of Philadelphia, 1882; aged 66; died, Nov. 27, 1925.

William G. Osburn, Stonefort, Ill. (licensed, Illinois, 1883); aged 90; died, February 1, of carcinoma.

Simon J. Devaul, Laings, Ohio (licensed, Ohio, 1896); aged 78; died, Dec. 4, 1925, of senility.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

BURGESS-JOHNSON-WEBB SYNDICATE OF FRAUDS

How the Public Has Been Swindled by Kansas City Medical Mail-Order Schemes

On February 11, 1926, Postmaster General Harry S. New issued a fraud order against a group of medical mail-order swindles that had been conducted for some time by Ward H. Webb, W. W. Burgess and Linn D. Johnson. These mail-order quacks fleeced the public from nearly every possible medical angle. Under the name of Dale Laboratories they sold "Virex," a fraudulent cure for deafness, a fake cure for "stomach trouble"—"Dale's Wonderful Stomach Remedy"—and a kidney cure humbug, "Dale's Kidney Prescription." Under the trade name "King's Laboratories" they sold a pyorrhea cure swindle. As the "Hilton Laboratories" they

Virex
COMPOUND
This Famous TEST
Proves the Penetrating Power
VIREX Quickly Reaches the Seat of Ear Troubles.
The Ear Is the Most Delicate and Intricate Mechanism In the Body
USE ONLY VIREX FOR EAR TROUBLES
THE DALE LABORATORIES, Kansas City, Mo.

A sample of some of the advertising material (greatly reduced in size) used by Burgess, Johnson and Webb when quacking it under the trade name Dale Laboratories. "Virex" was sold as a cure for deafness.

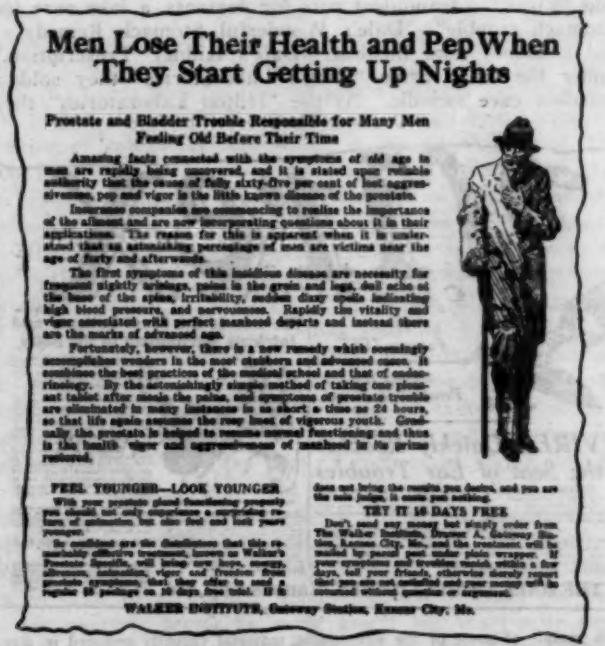
sold "Hilton's Vitamins to Make you Fat." As Warren Laboratories they sold a group of fake beauty preparations. Under the name Webb Chemical Company they sold a fraudulent cure for asthma, the "Famous Webb Combination Prescription." Under the name Walker Institute they exploited those with prostate trouble—"Walker's Prostate Specific." Under the name Restorex Company they sold "Restorex Tablets," a weak man remedy, while they sold a fake rheumatism cure—the "3-Way Combination Treatment" under the name 3-Way Chemical Company. These are only a few of the twenty-seven schemes that have been operated through the mails under the name of the Burgess-Johnson-Webb Corporation.

The government report declares that Burgess, Johnson and Webb have for some years conducted the Gray Advertising Agency at Kansas City, Mo. The agency handled the advertising accounts of a number of medical mail-order concerns and, as so frequently happens, decided to go into the medical mail-order game itself. To do this they incorporated "Burgess-Johnson-Webb Corporation" as a holding company, and put on the market a number of medical mail-order enterprises under almost as many different trade names.

During the spring and summer of 1925 the federal authorities began to investigate the activities of these people. Burgess, Johnson and Webb, evidently being shrewd enough to realize that their game was about up, seem to have cast about for some method of getting "out from under." The

memorandum of Judge Horace J. Donnelly, Solicitor of the Post Office Department, to the Postmaster General, recommending the issuance of a fraud order against these various fakes, states that in October, 1925, Burgess and Johnson entered into a contract with Webb whereby their interests were conveyed to Webb for the consideration of $50,000, in payment of which fifteen promissory notes were given by Webb to Burgess and Johnson. Webb is said to have declared that when this arrangement was made it was with the understanding that the several fraudulent businesses were to be liquidated and that the notes that Webb gave to Burgess and Johnson were not personal notes but the notes of the Burgess-Johnson-Webb Corporation. Webb is said to have stated further that it was understood that if the business should fall short of paying the notes—in other words, if the government should bar the thing from the mails—the notes would be "simply thrown away."

On the date set for the hearings of this case, Ward H. Webb appeared at Washington accompanied by a Washington attorney, Jerry Mathews, while John A. Nash of Chicago



Men Lose Their Health and Pep When They Start Getting Up Nights

Prostate and Bladder Trouble Responsible for Many Men Feeling Old Before Their Time

Amazing facts connected with the symptoms of old age in men are rapidly being uncovered, and it is stated upon reliable authority that the cause of fully sixty-five per cent of lost aggressiveness, pep and vigor is the little known disease of the prostate.

Insurance companies are commencing to realize the importance of the ailment and are now incorporating questions about it in their applications. The reason for this is apparent when it is understood that an astonishing percentage of men are victims near the age of forty and afterwards.

The first symptoms of this insidious disease are necessity for frequent nightly urinings, pains in the groin and legs, dull ache at the base of the spine, irritability, seldom dizzy spells indicating high blood pressure, and nervousness. Rapidly the vitality and vigor associated with perfect manhood departs and instead there are the marks of advanced age.

Fortunately, however, there is a new remedy which seemingly accomplishes wonders in the most stubborn and advanced cases. It combines the best practices of the medical school and that of endocrinology. By the astonishingly simple method of taking one pleasant tablet after meals the pains, and symptoms of prostate trouble are eliminated in many instances in as short a time as 24 hours, so that life again assumes the rosy hues of vigorous youth. Gradually the prostate is helped to resume normal functioning and thus in the health, vigor and aggressiveness of manhood in its prime restored.

FEEL YOUNGER—LOOK YOUNGER

With your prostate gland functioning properly you should not only experience a surprising return of animation, but also feel and look years younger.

We confident are the distributors that this remarkably effective treatment, known as Walker's Prostate Specific, will bring new hope, energy, afternoon, ambition, vigor and freedom from prostate symptoms, that they offer to send a regular $5 package on 10 days free trial. If it does not bring the results you desire, and you are the sole judge, it costs you nothing.

TRY IT 10 DAYS FREE

Don't send any money but simply order from The Walker Institute, Gateway A., Gateway Station, Kansas City, Mo., and the treatment will be mailed by parcel post under plain wrapper. If your symptoms and troubles vanish within a few days, tell your friends, otherwise merely request that you are not satisfied and your money will be returned without question or argument.

WALKER INSTITUTE, Gateway Station, Kansas City, Mo.

Under the trade name Walker Institute Burgess, Johnson and Webb sold a quack remedy for "prostate trouble." Here is a facsimile of one of the advertisements, greatly reduced.

appeared at the same time as attorney of Warren W. Burgess and Linn D. Johnson. While Webb offered some defense in the cases against "Dale Laboratories," "Warren Laboratories," "Hilton Laboratories" and "Walker Institute," he offered no defense in the cases of the Webb Chemical Company, Associated Health Institutions, Associated Health Institute, Burgess Wholesale Mercantile Company and the King Laboratories.

Attorney Nash offered and made no defense for Burgess and Johnson, but filed a motion, supported by a brief, requesting that no fraud order be issued against the names of his clients and asking that no reference whatever be made to their names in any finding of fact that might be prepared. It was brought out by the government in its investigations that Burgess, Johnson and Webb had no medical training and that none of the variously named "laboratories" were laboratories in fact. Webb made a pretense of having had some training as a chemist, claiming that he studied chemistry at the University of Missouri. When confronted with a certified report from the Registrar of the University, however, he was unable to point out the course in chemistry which he claimed to have pursued, but opined that it was included in the credit given him for "general botany."

No physicians, of course, were employed by these quacks in connection with any of the enterprises, although, as will be shown in discussing some of the individual frauds, they did employ the quack David H. Reeder of Laporte, Indiana, whose fakeries have been discussed at different times in THE JOURNAL. What follows is a brief abstract of Judge Donnelly's memorandum on the various schemes against which the fraud orders were issued:

DALE LABORATORIES

Under the name "Dale Laboratories" and "W. H. Dale," Burgess, Johnson and Webb exploited "Virex," as an alleged cure for deafness. The name W. H. Dale was fictitious. The initials were derived from the first two initials of W. H. Webb's name, while the "Dale" is the middle name of Linn Dale Johnson. Virex, it appears, was a name given by the Burgess-Johnson-Webb outfit to a nostrum previously known as "K-17" promoted by a mail order quack, Cooley H. Greene, who used the trade name "Greene Laboratories." Greene placed his advertising through the Gray Advertising Agency, and getting behind in his payments an arrangement was entered into whereby Burgess-Johnson-Webb should put out a similar product under the name "Virex" sold by the "Dale Laboratories." Greene is said to have declared that he never did give Burgess, Johnson and Webb his complete formula. This, however, did not prevent this trio from incorporating in their advertising and literature a number of testimonials that had been furnished for "K-17." The name K-17 was eliminated from the testimonials and the word Virex substituted. Greene, it should be said, originally put out his preparation under the name "Rattlesnake Oil," although of course, it contained no rattlesnake oil. To quote from the memorandum:

"The advertising and literature of the Dale Laboratories describes 'Virex' as 'an old time physician's prescription' and 'the discovery of a widely known physician.' Mr. Webb stated at the hearings that, at the outset, the basis for these representations was his understanding that Cooley H. Greene was a doctor and that he 'discovered' the preparation, but that some months after the Dale scheme had been started, he learned from Greene himself that he was not a physician, and further, that Greene had served a term in Leavenworth penitentiary at one time. Mr. Webb stated that Greene had formerly peddled his preparation, known as 'K-17,' around the country from town to town.

"The evidence shows that after Webb learned that Greene was not a physician, Messrs. Burgess, Johnson and Webb had a number of conferences on the subject and decided to submit the matter to some physician in order that they might continue the above quoted representations in their advertising and literature. The evidence further shows that the above mentioned representations have been carried in the advertising and literature from the outset of the scheme and were not eliminated after the disclosures of Greene to Webb, as above indicated.

"Mr. Webb stated that in December, 1923, the formulas for the Virex treatment were submitted to 'Dr.' David H. Reeder, of Laporte, Indiana, and that 'Dr.' Reeder suggested a few slight changes, and that thereafter Messrs. Burgess, Johnson and Webb considered that they were justified in continuing the representation as to the discovery of 'Virex' by a 'widely known physician.' Mr. Webb stated that 'Dr.' Reeder had, in effect, 'rediscovered' the preparation. On direct examination, Mr. Webb asserted that 'Dr.' Reeder was a physician of high standing. However, on cross examination, he identified a picture of 'Dr.' David H. Reeder, which appears on page 770 of 'Nostrums and Quackery,' published by the American Medical Association. It was shown that Reeder has long been known as a promoter of various mail order medical schemes. Reeder's operations, under the name of the 'Home Health Club', are fully described in the above mentioned 'Nostrums and Quackery', volume 2. He has promoted, at various times, lost manhood cures, piles cures, cancer cures and various other schemes. In September, 1913, the Department of Registration and Education of the State of Illinois arrested Reeder for practicing medicine without a license, and he was fined $25.00."

The memorandum goes on to show that Virex was made for the Burgess-Johnson-Webb concern by George A. Breon and Co. of Kansas City. This presumably is the same concern that exploits "ethical proprietaries" to physicians. The Virex treatment consisted of an oil, a laxative tablet and

a nasal tablet for douche purposes. The oil had the following composition:

Methyl Salicylate	6	pints
Oil Eucalyptus	3	pints
Oil Camphor	6½	pints
Neatsfoot Oil	2½	pints
Oil Mustard	9½	drams
Benzol	12½	pints

The laxative tablets were:

Powdered ext. Cascara	1	grain
Podophyllin	⅒	grain
Potassium Iodide	1	grain
Pepsin	¼	grain
Sodium Salicylate	1	grain
Thiosinamine	¼	grain
Powd. ext. Nux Vomica	⅒	grain
Powd. ext. Cornsilk	¼	grain

The nasal tablets were found on analysis to contain Dichloramin-T, sodium carbonate and starch. It is not necessary to say that the Virex treatment as a cure for deafness was a plain, unadulterated swindle. Although Virex was advertised under the claim that it would cure deafness within twenty-four hours after the victim had purchased, the follow-up letters were so worded as to induce him to purchase more, stating that a chronic case could not be expected to be cured in a short time. When this inconsistency was called to Webb's attention his only explanation was that this was a device generally employed in medical mail-order enterprises. The government brought out the fact that in one of the test cases conducted by inspectors a letter was written to the Dale Laboratories advising them that the writer's ear drums were entirely gone but that if they would guarantee to restore his hearing they might send the treatment. It was sent!

WEBB CHEMICAL COMPANY

The Webb Chemical Company, according to the government report, was started by the Burgess-Johnson-Webb trio in January, 1924. Under this trade name "Webb's Combination Prescription" for asthma was exploited. The advertising literature was prepared by Webb and Burgess. The treatment was alleged to have been discovered by one George F. Burgess, a relative of Warren W. Burgess. The asthma cure — "Webb's Famous Prescription"— consisted of tablets and a liquid to be used in a nebulizer. The tablets had the following composition:

Potassium Iodide	3	grains
Powdered Lobelia	1	grain
Powdered Squill	1	grain
Powdered Sugar	½	grain

The nebulizer fluid was composed of:

Novocaine	10	grains
Atropine Sulphate	1	grain
Distilled Water	½	ounce
Glycerine	½	ounce

One of the testimonials for the asthma remedy was ascribed to "Mr. Warren Burgess." Of course, the public had no means of knowing that Burgess was one of the promoters of the swindle.

WARREN LABORATORIES

Under the trade name "Warren Laboratories" and also the name "W. H. Warren," the Burgess-Johnson-Webb concern exploited a complexion treatment consisting of "Clear-Plex" and "Plex-Tone." Burgess-Johnson-Webb informed the government "that the remedies were 'discovered' by George A. Breon, and that they are prepared in the George A. Breon and Company laboratories, in Kansas City, Missouri." The "Plex-Tone" tablets were to be taken internally and contained 1 grain of calcium sulphide. "Clear-Plex," which was to be applied externally night and morning, had the following composition:

Oil of Wintergreen	½	ounce
Corrosive Sublimate	32	grains
Boric Acid	32	grains
Salicylic Acid	32	grains
Alcohol, formula 39-B	27½	ounces
Witch Hazel	4½	ounces

This combination was said to produce a "clear, attractive skin" and to free one from "pimples, acne, blackheads, oily skin, brown spots and unsightly blemishes." The form letters employed in this scheme purported to come from "W. H. Warren," who, of course, was just as fictitious as "W. H. Dale." The literature also contained a story to the effect that the treatment was discovered by Ina Warren, a non-existent sister of the fictitious W. H. Warren. One of the testimonials issued by the Warren Laboratories purported to be from "David H. Reeder, M.D., Chicago, Illinois." Reeder, as has already been pointed out, is not an M.D. but

Asthma can be stopped in 4 minutes-Try It
The World's Greatest Asthma Treatment
Regular $7.50 Treatment for 10 Days Only $3.70
TRY IT FREE
New Beauty Can Be Yours in Only 20 Minutes—Expert Tells How!
$1.79
You Can Gain as Many Pounds as You Want
SEND NO MONEY
$2.10
PYORRHEA
Can Be Stopped!
Look! What Pyorrhea Will Do Unless You Stop It NOW
$3.00 Supply Now only
$1.95

Greatly reduced facsimiles of the advertisements of four more medical swindles exploited by Burgess, Johnson and Webb under the names, respectively: Webb Chemical Company, Warren Laboratories, Hilton Laboratories and King Laboratories. Just four of the extensive group of mail-order quackeries carried on by these gentry.

a mail-order quack in his own right who evidently can be hired by other mail-order quacks when the occasion arises.

HILTON LABORATORIES

The Hilton Laboratories scheme was started by Burgess, Johnson and Webb in November, 1923. A fictitious W. W. Hilton was used in the scheme, the name being made up from the first two initials of Warren W. Burgess and the middle name of Ward Hilton Webb. Of course the Hilton Laboratories were not laboratories. As in other cases, the government reports that these mail-order quacks employed George A. Breon & Co. to furnish their nostrum.

The Hilton Laboratories exploited "Hilton's Vitamines" which were said to quickly build up thin, scrawny figures and to make it possible for any one to have "smooth, full shoulders, rounded neck and a plump, trim figure." The product, according to the Solicitor's memorandum, had the following composition, the amount being sufficient for 42,000 tablets:

Gaduol	3 lbs.	10 oz.
Wheat Germ	2 lbs.	..
Yeast	3 lbs.	..
Metagen ¼ grain	1 lb.	8 oz.
Magnesium carbonate	2 lbs.	8 oz.
Powd. Licorice root	1 lb.	..
Dextrine	2 lbs.	..

Starch	5 lbs.	..
Powd. Sugar	10 lbs.	..
Vanillin	..	3 oz.
Coumarin	..	1 oz.
Powd. Cloves	..	4 oz.
Talcum q. s.	42 lbs.	

The whole trend of the advertising of "Hilton's Vitamines" was to give the impression that the public is unable to get a sufficient quantity, or the right kind of vitamins in its daily diet. It was shown at the hearing that at least 86 per cent of the ingredients of Hilton's Vitamine Tablets did not contain any vitamins, and the remaining portion contained very small percentages of certain vitamins. The amount of vitamins that would be obtained by taking from two to six of these tablets daily would be practically negligible compared with the amount obtained in an ordinary daily diet.

WALKER INSTITUTE

Burgess, Johnson and Webb started the Walker Institute in November, 1923. It had the usual fictitious individual connected with it, in this instance "I. B. Walker," the last name being derived from the maiden name of Burgess' wife. The Walker Institute sold an alleged cure for prostate trouble. To quote from the memorandum:

"They informed the inspector that no physicians, chemists or pharmacists are employed, and the concern has no laboratories. The preparations are prepared by George A. Breon and Company of Kansas City, Missouri. They stated that the treatment was worked out by W. W. Burgess, who used it on himself for prostate trouble. There is in evidence a full page advertisement of this scheme that appeared in the *National Tribune*, of Washington, D. C., a paper that circulates largely among Civil War veterans."

The treatment consisted of two tablets, the first of which had the following composition:

Hexamethylenamine	4 grains
Des. Prostate Substance	1½ grains
Thyroid Substance	¼ grain
Powd. Ext. Colchicum	¼ grain
Calcium Phosphate	1¼ grains

The second tablet was:

Methylene Blue	1 grain
Boric Acid	2 grains
Ext. Cornsilk	½ grain
Ext. Hydrangia	½ grain

Of course the physiologic action of methylene blue was taken advantage of as is usually the case when this substance is used by quacks. The user was told that a few hours after using the "pink tablets"—those containing methylene blue—a blue color would be noticed in the urine. This, said these quacks, was evidence that the "antiseptic ingredients in the tablets are reaching the seat of your trouble" and will "help eliminate the irritation and poisons causing your trouble." The solicitor points out in his memorandum that any one taking methylene blue will pass urine of a blue color, and he points out further that in years past a number of medical mail-order frauds have exploited methylene blue for the sole intent and purpose of tricking the victims.

KING LABORATORIES

In February, 1924, Burgess, Johnson and Webb started the King Laboratories, creating "L. W. King" as the fictitious individual whose signature appeared on the letters. "King's Combined Pyorrhea Treatment," or as it was some times called "King's Combined Three-Way Pyorrhea Treatment" was the product sold under this trade name. It consisted (1) of a mouth wash made up of saponified creosote oil and oil of peppermint colored pink; (2) iodine, creosote and camphor in oil for local application; (3) 1 grain calcium sulphide tablets, and (4) chloramine-T tablets. As the memorandum points out, the "treatment" was somewhat similar to that sold under the name of Strong's Laboratories, against which a fraud order was issued Jan. 16, 1926, and also that sold by the name Moore's Medicine Laboratories, which was declared fraudulent Aug. 27, 1925.

ASSOCIATED HEALTH INSTITUTIONS, ET AL.

Under the names "Associated Health Institutions," "Associated Health Institute," "Burgess-Johnson-Webb Corporation" and "Burgess Wholesale Mercantile Co." Burgess, Johnson and Webb sent out circular matter advertising practically all of their line of medical fakes. The letter-head sent out under the name "Associated Health Institutions" stated that it was an association formed for the purpose of offering standard guaranteed products direct to the purchaser at a lower price than the manufacturer would sell them. The various false and fraudulent pretenses, representations and promises employed in the sale of the Virex deafness cure, the Webb's Combination Asthma Cure and the Walker Prostate Specific, etc., were used in these schemes. It is brought out in the Solicitor's memorandum that since the hearings were held the Postmaster at Kansas City had been notified to cease delivering mail addressed to the nineteen other concerns run by Burgess, Johnson and Webb.

As stated at the outset, on Feb. 11, 1926, the government issued a fraud order covering the names Dale Laboratories, W. H. Dale, Webb Chemical Company, Hilton Laboratories, W. W. Hilton, King Laboratories, L. W. King, Walker Institute, I. B. Walker, Warren Laboratories, W. H. Warren, Ina Warren, Associated Health Institutions, Associated Health Institute, Burgess-Johnson-Webb Corporation and Burgess Wholesale Mercantile Co.

Unfortunately the government did not issue a fraud order against the personal names of Ward H. Webb, Warren W. Burgess and Linn D. Johnson. These quacks who have successfully fleeced the public out of thousands of dollars are allowed to continue to use the United States mails in their individual capacities and have been penalized merely to the extent that they can no longer receive money from victims through this particular group of schemes. It is to be regretted that they are still out of the penitentiary and are permitted to keep their "swag."

Correspondence

ENGLISH WEIGHTS AND MEASURES

To the Editor:—Under "Current Comment," THE JOURNAL, February 6, page 422, the editorial writer of a Brazilian journal is quoted as saying: "When one tries to reduce English dosage to our own, this involves a series of steps, if not difficult, at least time consuming and bothersome." To the average country doctor, the metric system is meaningless, and for him to fathom it would be "bothersome." Until our nation adopts the metric system, and all weights and measurements are required to be made by it and all scales changed to that requirement, let us at least use the double system in our medical writings.

J. T. HORNBACK, M.D., Nevada, Mo.

INTRAMUSCULAR ADMINISTRATION OF BISMUTH

To the Editor:—In THE JOURNAL, January 30, appears an article by Dr. Irwin Sutton, who reports a case of gluteal abscess following the intramuscular administration of a bismuth salt, neotrepol, which was used in the treatment of a patient with syphilis. The impression conveyed is that the phenomenon is rare.

During our early experience with neotrepol at the Boston Dispensary several years ago, we encountered at least two similar cases. Following the substitution of potassium bismuth tartrate for the latter drug, we encountered at least ten more. These have occurred for the most part in obese women. In view of the large number of patients receiving bismuth treatment, this forms only a small percentage of the total. Nodes appearing at the site of the injection have been

not uncommon and have also made their most frequent appearance in women.

An abscess following the injection of bismuth is due as a rule to a faulty technic in the manner of intramuscular administration. One of our cases presented two different abscesses in consecutive weeks and followed the administration of bismuth by a physician carrying out this form of treatment for the first time. The deposition of a small amount of a bismuth compound in the subcutaneous tissues either when the drug is being injected or when the needle is withdrawn may be of sufficient moment to cause the formation of a sterile abscess.

J. L. GRUND, M.D., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SNAKE BITE

To the Editor:—I have read with much interest an article in the *Dearborn Independent* on snake bite. Every summer we have snake bite to deal with in this vicinity (Larned, Kan.), and I should like advice as to the reliability of this article.

C. H. EWING, M.D., Larned, Kan.

ANSWER.—Paul MacDonald's interview with Mr. Ditmars in the January issue of the *Dearborn Independent* on the subject of the venom of deadly snakes and the serum for snake bite is the article concerned. In the New York Zoological Garden, Mr. Ditmars has one of the largest and most interesting exhibits of snakes in the world. He has also devoted much time to the dangerous task of extracting venom for experimental purposes. Calmette's serum, made by immunizing the horse, is undoubtedly ideally antidotal to the cobra venom, and great hopes were naturally raised at its discovery in view of the fact that twenty thousand or more of India's population die yearly from snake venom. The difficulty of applying the remedy, however, lies in the vastness of the territory, the isolated villages, and the habits of the working people, whose lower extremities are not protected and who often sleep out at night when the wandering cobra, seeking its meal of snakes, finds the sleeping native and wantonly bites him. Death takes place quickly, and under the circumstances it must be impossible to administer the remedy in any but rare instances. Valuable as the serum is, it can hardly have made even a faint impression on the mortality record.

In Brazil, conditions are different and more favorable. The working population there, while scattered through the forests, particularly in the north, are more or less concentrated about the haciendas, making it easy to see the victims promptly and provide efficient care. The situation in Brazil has been transformed by the pioneer work of Dr. Vital Brazil in the Institute of Butantan São Paulo, where serums are prepared against the numerous poisonous snakes, including the coral snakes of the cobra group and the rattlesnakes and other pit vipers, the efficiency of which has been demonstrated beyond a doubt. The former head of the Butantan Institute was Dr. Afranio Amaral, who (THE JOURNAL, Dec. 5, 1925, p. 1822) has been asked to organize the laboratory for research on animal venoms at Harvard University. An educational campaign has been carried on, the value of the serums has been given popular demonstration, and they have been distributed among the planters with full instructions as to preservation and use. In exchange, the planters send to the institute the various poisonous snakes found on their plantations for identification and for the manufacture of serum. Under this intelligent plan, the saving of life in Brazil has been a notable one.

The serums differ, so that each different species of poisonous snake calls for its particular antivenom. For that reason, it is not possible for us to import an effective venom from Brazil to the United States unless, as they have done, we send a supply of venom to be used in immunizing the animals from which the serum is taken.

In San Diego, Calif., there is a zoological garden, of which Dr. H. M. Wegeforth is the director. Mr. L. M. Klauber is the scientific curator of the herpetologic department. When any one in or near San Diego is bitten, the zoo is immediately notified by telephone, and an airplane is dispatched to the scene with a suitable package of serum with full instructions. The package is dropped to the ground, and the airplane returns.

One of the difficulties of the situation is that these highly organized serums do not keep well and various kinds must be kept in stock, while in the scattered populations of our Southern states too much time elapses between the injury and the treatment. The airplane, however, offers a solution.

It is a comfort to know that not more than one in twelve or fifteen persons bitten dies of the bite, even under our customary inefficient methods of treatment. A bite by the true water moccasin (not the maligned, though vicious, common water snake) is quite rare. It is also rare to hear of any one dying from the bite of a copperhead or a pigmy rattler. If a big diamond back rattlesnake or his Texas congener, say one five feet in length, strikes a man and injects his poison, death may follow quickly. A dog will sometimes almost drop in his tracks.

If there is a locality where the bite of a poisonous snake is relatively frequent, it would be well to keep fresh antivenom for that particular snake on hand. The use of antivenom should not supersede the use of the customary surgical methods.

EMULSIFICATION OF COD LIVER OIL AND VITAMINS

To the Editor:—Does the beating and consequent aeration required to emulsify cod liver oil have a destructive effect on the vitamin?

S. J. BEACH, M.D., Portland, Me.

ANSWER.—Emulsification of cod liver oil is best carried out at a low temperature. As a short period of aeration at a low temperature does not lead to destruction of either vitamin A or vitamin D (the antirachitic vitamin) it is safe to say that emulsified cod liver oil is equal in vitamin potency to the unemulsified. As a matter of fact, some tests have been carried out with emulsified samples, but unfortunately these tests have not clearly distinguished between vitamin A and vitamin D. As far as they have gone, however, they have indicated sufficient vitamin content to warrant therapeutic use.

"SNAPPING" IN THE BACKBONE

To the Editor:—Can you give the anatomic explanation of the following sensation: When the head is turned one way and then turned in the opposite direction, a snapping sound is heard. This makes an "impression" under chiropractic adjustments. The candidate takes it for granted that something has been put in place. I wonder what the true explanation of this snapping is.

C. B. KENTON, M.D., Artesian, S. D.

ANSWER.—This snapping is much like the snapping that can be produced in one's finger or toe joints. It is a mistaken idea that in all these cases something snaps in or out of place. It is a pressure change that causes the joint to snap. Chiropractors have been known to do it with their fingers in the course of a manipulation to fool the victim into believing that a joint was put in place. There are undoubted cases due to snapping of the ligamentum nuchae over one or more spinous processes. It is a situation analogous to "snapping hip," in which condition the tensor fasciae femoris snaps over the great trochanter.

GLYCERIN FOR VAGINAL LUBRICANT

To the Editor:—Please let me know through THE JOURNAL whether the use of glycerin as a lubricant for vaginal examination during the first stages of labor has (*a*) any harmful or undesirable effect on the vaginal mucosa; (*b*) any injurious effect on the rubber glove used? The amount of glycerin used is just sufficient to moisten the second and third fingers of the examining gloved hand. Please use initials only.

B. G., Long Island.

ANSWER.—As far as we know, glycerin has no deleterious action on the vaginal mucosa when used as a lubricant during labor. In one of the leading maternity hospitals in the country, glycerin is a constituent of the lubricant employed and no harm has ever been ascribed to the lubricant. The opinion of chemists specializing in rubber is that glycerin is not harmful but that petrolatum is harmful to rubber gloves.

RECRESAL

To the Editor:—Can you give me any information about a material called Recresal?

JEROME ALEXANDER, M.Sc., New York.

ANSWER.—Recresal, according to the label on the package, is prepared by the Chemical Works, late H. & E. Alberts, Biebrich/Rhein (Germany). Some of the claims made for the product are: "Highly efficient, corroborative for the sick, convalescents and those in need of recreation." It is also

"Specially recommended in cases of weakness and exhaustion of a physical and psychic nature, in bodily and mental overstrain; indispensable for the preservation of the tone of muscles and nerves."

According to Arends-Keller (*Neue Arzneimittel und Spezialitäten*, 1922, p. 417), Recresal is sodium biphosphate (sodium acid phosphate; primary sodium phosphate). Tests made in the A. M. A. Chemical Laboratory confirm the statement that sodium acid phosphate is the essential constituent. In view of the chemists' findings, the claims made for the product are preposterous.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 2. Sec., Dr. Harry C. De Vighne, Juneau.
CALIFORNIA: Los Angeles, March 8-11. Sec., Dr. Charles B. Pinkham, Room 906, Forum Bldg., Sacramento.
CONNECTICUT: Hartford, March 9-10. Sec., Dr. Robert L. Rowley, 79 Elm St., Hartford. Homeo. Board, New Haven, March 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
IDAHO: Boise, April 6. Commissioner of Law Enforcement, F. A. Jeter, Boise.
MAINE: Portland, March 9-10. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.
MASSACHUSETTS: Boston, March 9-11. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.
MISSOURI: Jefferson City, March 9-11. Chief, Licensure, Dr. Ross Hopkins, Capitol Bldg., Jefferson City, Mo.
MONTANA: Helena, April 6-8. Sec., Dr. S. A. Cooney, Helena.
NEW HAMPSHIRE: Concord, March 11-12. Sec., Dr. Charles Duncan, Concord.
NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. W. T. Joyner, Roswell.
OKLAHOMA: Oklahoma City, March 9-10. Sec., Dr. J. M. Byrum, Shawnee.
PORTO RICO: San Juan, March 2. Sec., Dr. D. Biascoechea, Box 804, San Juan.
TEXAS: Dallas, American Board of Otolaryngology, April 19. Sec., Dr. W. H. Loeb, 1402 South Grand Blvd., St. Louis, Mo.

Kentucky December Examination

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 8-10, 1925. The examination covered 11 subjects and included 110 questions. An average of 70 per cent was required to pass. Of the 10 candidates examined, 8 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
Howard University School of Medicine	(1925)	81, 83
Loyola University School of Medicine	(1925)*	85
Univ. of Illinois College of Phys. and Surgs.	(1915)	91
Hospital College of Medicine, Louisville	(1905)	92
University of Louisville School of Medicine	(1924)	86
Harvard University	(1923)	91
Meharry Medical College	(1925)	86
FAILED		
Cotner University Medical Department	(1911)	65
University of Naples, Italy	(1921)†	68

* This candidate has completed his medical course and will receive his M.D. degree on completion of a year's internship in a hospital.
† Verification of graduation not completed by the American Medical Association.

Dr. McCormack also reported during 1925 the names of two candidates licensed by examination, 16 by reciprocity and 2 by endorsement of credentials. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
University of Louisville School of Medicine	(1925)	90 ‡

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
State University of Iowa College of Medicine	(1920)	Iowa
Kentucky School of Medicine	(1908)	W. Virginia
University of Louisville School of Medicine	(1924)	Texas
University of Maryland School of Medicine	(1925)	W. Virginia
University of Michigan Medical School	(1904)	Penna.
Barnes Medical College, St. Louis	(1908)	Illinois
Columbia University College of Phys. and Surgs.	(1908)	Washington
Miami Medical College, Cincinnati	(1894)	Ohio
University of Cincinnati Coll. of Med.	(1920) (1924)	Ohio
Meharry Medical College	(1923) (1924) W. Va. (1925)	Tennessee
University of Tennessee College of Medicine	(1909)	Tennessee
Vanderbilt University School of Medicine	(1925)	Tennessee
McGill University Faculty of Medicine	(1922)	Canada

College	Year Grad.	Endorsement with
ENDORSEMENT OF CREDENTIALS		
Johns Hopkins University Medical Department	(1922)	N. B. M. Ex.
Woman's Medical College of Pennsylvania	(1923)	N. B. M. Ex.

‡ No grade given.

Book Notices

THE CLIMATES OF THE UNITED STATES. By Robert DeCourcy Ward, Professor of Climatology in Harvard University. Cloth. Price, $4. Pp. 518, with 145 illustrations. Boston: Ginn and Company, 1925.

According to its preface, this is the first book since 1875 that is devoted wholly to the climates of the various sections of our vast country. It includes an historical discussion of the development of climatologic knowledge and special chapters on such topics as snow, rain, thunderstorms, tornadoes and hot waves. Two chapters of considerable importance deal with climate and health, and climate and crops. In the former, one sentence reads: "A climate which encourages people to spend the maximum possible amount of their time outdoors in the open air is, other things being equal, the best for the majority of men and women." The author also says, "While fully recognizing the many remarkable cures which have been accomplished in the cases of thousands of tuberculous patients when such persons were sent out in time, were properly advised as to the best place of residence, and were financially able to make the best possible use of their opportunities, it is undeniable that many serious mistakes have been made by the medical profession in advising invalids to go to the Southwest." These mistakes, the author believes, have been due to inadequate knowledge of actual climatic conditions, such as are made fully apparent in this book.

An Introduction to Objective Psychopathology. By G. V. Hamilton, M.D., Director of Psychobiological Research, Bureau of Social Hygiene, Inc. With Foreword by Robert M. Yerkes, Ph.D., LL.D., Professor of Psychology, Yale University. Cloth. Price, $5. Pp. 354. St. Louis: The C. V. Mosby Company, 1925.

The author presents studies of 200 patients with nervous diseases found in a single community and without any attempt to classify them according to commonly accepted neuropsychiatric terms. He concludes that 145 of the 200 persons studied owed their nervousness wholly or in part to maladaptive habits of response to personal problems and difficulties. Many of them also suffered from actual physical disease. While not discarding entirely freudian classifications, he endeavors to fit them into his own scheme, realizing that the end-result is perhaps somewhat disorderly. The second half of the book is an attempt to present the new field of objective psychopathology, explaining the relation of his views to those of the freudian and other schools of psychiatric classification. The author is also able to indicate the relation of human reactions to experimental studies previously made on monkeys.

SOME GERMAN SPAS. A Holiday Record. By S. L. Bensusan. Cloth. Price, 8 shillings net. Pp. 160, with illustrations. London: Noel Douglas, 1925.

"The keynote of all of these places is cheerfulness." With this sentence in his opening chapter on the psychology of cures, Mr. S. L. Bensusan explains the popularity of the German watering places. These resorts have enjoyed great vogue since time immemorial, and they are beginning to recover from their postwar difficulties. The book is illustrated with rotogravures. It is quite definitely a travel book rather than a guide to therapeutic indications. Many of the essays, which are well written, have previously appeared in British periodicals. This account of the German spas is a most enjoyable and useful book for any one planning a health trip abroad.

THE GROWTH OF BIOLOGY. Zoölogy from Aristotle to Cuvier, Botany from Theophrastus to Hofmeister, Physiology from Harvey to Claude Bernard. By the Late William A. Locy, Ph.D., Sc.D., Professor in Northwestern University. Cloth. Price, $4. Pp. 481, with 140 illustrations. New York: Henry Holt & Co., 1925.

The growth of biology is also essentially that of medicine, to which it is fundamental. Locy's story of this growth is above all, a presentation in proper perspective of the growth of many sciences dealing with living organisms. It may be considered as of the highest accuracy, since the author has constantly consulted original sources in order to verify his observations, and since he presents the language of such original sources whenever it can be given without

distortion of its relative importance. This is a most useful book for any one wishing to obtain a general survey of the history of the modern medical sciences.

ATLAS OF DISEASES OF THE SKIN: With Diagnostic and Therapeutic Notes. By Prof. G. Riehl, Prof. Leo V. Zumbusch and John B. Lady, A.M., M.D., Dermatologist to the Lankenau and Methodist Hospitals, Philadelphia. Part I. Infectious Diseases of the Skin. Part II. Inflammatory Diseases of the Skin. Part III. Atrophies, New Formations, Hypertrophies. Leather. Price, $25. Three volumes. Pp. 149, with 84 plates. Philadelphia: P. Blakiston's Son & Co., 1925.

Since diagnoses of diseases of the skin depend primarily on familiarity with the various appearances of lesions, an atlas in colors of the more common types of skin disturbances is a valuable aid to any medical student. The three volumes of this atlas are, therefore, of value primarily for the pictures that they present. The discussions as to symptoms and treatment are quite inadequate; they are but the briefest of outlines, which in every instance have to be supplemented by reference to more suitable texts.

WHO'S WHO IN AMERICAN MEDICINE 1925. Edited by Loyd Thompson, M.D., F.A.C.P., and Winfield Scott Downs. Cloth. Price, $10. Pp. 1820. New York: Who's Who Publications, Inc., 1925.

In this book, the publishers have endeavored to follow as closely as possible the plan of other "Who's Who" publications. It is stated that there is no paid material in the volume, although attention has previously been called to some of the circular letters requesting physicians to subscribe to the book as a prerequisite for inclusion in its pages. Whereas the material included, in general, is excellent, the names of many of the great may be sought without success, and hundreds of the not even near-great encumber the seventeen hundred pages of biographic material. The publishers explain that the omission of the names of those of great importance is due to the fact that requested data were not supplied, and offer to include these if they are made available. On the whole, the book is a useful volume for the things which it does contain.

ANIMALS OF LAND AND SEA. By Austin H. Clark, Curator, Smithsonian Institution. Cloth. Price, $3. Pp. 276, with 740 illustrations. New York: D. Van Nostrand Company, 1925.

This is essentially an elementary consideration of human and animal relationships in an attempt to make fundamental biology of general interest. The volume is excellently illustrated. The facts are so concentrated in many sections as almost to destroy readability. The book serves excellently, however, its purpose of indicating the place of man in the great world scheme.

LA TUBERCULOSE PULMONAIRE. Études de phtisiologie clinique et sociale. Par Léon Bernard, Professeur a la Faculté de médecine de Paris. Second edition. Paper. Price, 28 francs. Pp. 400, with illustrations. Paris: Masson et Cie, 1925.

The particular value of this treatise is the fact that it is written strictly from the clinician's point of view for clinicians. Bernard dispenses with much of the usual ballast that clinical books carry so frequently in their introductory chapters, and without being too apodictic he presents in brief and definite terms all that is necessary as a working basis for the clinical discussion: Heredity has no rôle in tuberculosis; all human beings are disposed to become tuberculous; there does not exist any especial predisposition; the significant factors are the quantity of the infection and superinfection and the state of resistance, which can be acquired only by infection. A good clinical classification is given. Symptomatology and diagnosis are thoroughly and readably discussed. There is an interesting chapter on affections of the upper respiratory tract in their relations to pulmonary tuberculosis, another on pregnancy and tuberculosis, an excellent little treatise on the so-called specific medication, and an account of the social and legal aspects. Many a reader will not infrequently take exceptions to some statement, but none will fail to admire the vividness and preciseness of Bernard's presentation, the masterful economy of his language, and the unity of his points of view throughout the book.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits.

THE CLINICAL STUDY AND TREATMENT OF SICK CHILDREN. By John Thomson, M.D., LL.D., F.R.C.P., Consulting physician to the Royal Edinburgh Hospital for Sick Children. Fourth edition. Cloth. Price, 30 shillings net. Pp. 912, with 258 illustrations. Edinburgh: Oliver and Boyd, 1925.

Pediatrics of the Scotch school nicely displayed by a clinician quite familiar with world literature, including the American.

PHYSIQUE AND CHARACTER. An investigation of the nature of constitution and of the theory of temperament. By E. Kretschmer. Translated from the second edition by W. J. H. Sprott, B.A., demonstrator at the Cambridge Psychological Laboratory. Cloth. Price, $5. Pp. 266, with 31 illustrations. New York: Harcourt, Brace & Co., Inc., 1925.

Shows how we are all pyknics or schizoids and what body-build has to do with temperament.

I BELIEVE IN GOD AND IN EVOLUTION. By William W. Keen, M.D. Fourth edition. Cloth. Price, $1.25. Pp. 109, with 5 illustrations. Philadelphia: J. B. Lippincott Company, 1925.

The proof of evolution and a confession of faith.

CHRONIC INFECTION OF THE JAWS. A short radiological and clinical study. By Stanley Colyer, M.D., M.R.C.P., D.M.R.E., Radiologist, Mildmay Mission Hospital. To which is added a synopsis of a series of fifty illustrated cases. By Reginald Curnock, L.R.C.P., M.R.C.S., L.D.S., Dental Surgeon to the Mildmay Mission Hospital. Cloth. Price, 10/6 shillings net. Pp. 76, with 26 illustrations. London: H. K. Lewis & Co., Ltd., 1926.

More about focal infection from the teeth.

ART OF PRACTICE. Cloth. Pp. 118. Cambridge: The Post-Graduate Association.

THERAPEUTIC NOTES. Cloth. Pp. 216. Cambridge: The Post-Graduate Association.

Mail order books of trite information at an excessive price. One bit of advice reads: "A good rule to follow is to tell the patient as much as it is good for him to know."

ANNUAL REPORT OF THE SURGEON GENERAL, U. S. NAVY, CHIEF OF THE BUREAU OF MEDICINE AND SURGERY, TO THE SECRETARY OF THE NAVY, FOR THE FISCAL YEAR 1925. Paper. Pp. 283. Washington: Government Printing Office, 1925.

ATLANTIC COUNTY MOSQUITO EXTERMINATION COMMISSION. Thirteenth Annual Report. Atlantic City, 1925.

CARNEGIE CORPORATION OF NEW YORK. Report of the President and of the Treasurer, for the year ended Sept. 30, 1925. New York City, 1925.

SAN FRANCISCO CANCER SURVEY. Second preliminary report. By Frederick L. Hoffman, LL.D., Consulting Statistician, Prudential Insurance Company of America. Newark, N. J.

THE ASSOCIATION OF LIFE INSURANCE PRESIDENTS. Proceedings of the 19th annual meeting. New York, 1925.

STUDIES ON THE AVIAN SPECIES OF THE CESTODE FAMILY HYMENOLEPIDIDAE. By Roy Lewis Mayhew. Illinois Biological Monographs. Volume X, No. 1. Paper. Price, $1.50. Pp. 125, with 11 illustrations. Urbana: University of Illinois, 1925.

REPORTS OF THE COMMITTEE FOR THE INVESTIGATION OF DENTAL DISEASE. II. The Incidence of Dental Disease in Children. Medical Research Council. Special report series, No. 97. Paper. Price, 1s. 6d. net. Pp. 48. London: His Majesty's Stationery Office, 1925.

THE ILLINOIS SOCIETY FOR MENTAL HYGIENE. Annual report of the Medical Director, for year ending September 30, 1925. Chicago.

IMMUNOCHEMICAL STUDIES. Edited by Carl H. Browning, Gardiner Professor of Bacteriology, Western Infirmary, Glasgow. Contributors: C. H. Browning, M. Kosakai, T. J. Mackie, T. Taniguchi, G. H. Wilson, N. Yoshinare. Cloth. Price, $4.50. Pp. 239. New York: William Wood & Co., 1925.

The properties of antigens and antibodies, opsonin and complement.

Medicolegal

Compensable Personal Injury—Influenza and Pneumonia

(De La Pena v. Jackson Stone Co. et al. (Conn.), 130 Atl. R. 89)

The Supreme Court of Errors of Connecticut, in holding that there was no error in this case in confirming an award for the death of an employee, says that, under the workmen's compensation act of that state, a compensable personal injury is an abnormal condition of a living body which arises out of and in the course of the employment and produces an incapacity to work for the requisite statutory period. It need not be traced to a definite happening or event. It may be caused by accident or disease, and includes diseases peculiar to an occupation, except those of a "contagious, communicable or mental nature." The happening or event includes the entire transaction to which the injury is traced, not only the operative causes, but their effect on the body of the injured person.

In this case the employee, a marble setter, as the result of exposure from the lack of heat in the building, the condition of dampness and water in which he worked, and exposure due to riding in an open truck and getting thoroughly drenched, all of which arose in the course of his employment, suffered an attack of influenza which later developed into pneumonia. Influenza is a recognized disease, and, when it renders one incapable of work for the statutory period, is compensable. Influenza is a communicable disease, but it was not peculiar to this employee's occupation, and hence did not fall within the exception to the statutory provision that the word "injury" shall be construed to include any disease which is due to causes peculiar to the occupation and "which is not of a contagious, communicable or mental nature." The pneumonia which developed from the influenza was compensable, since it was not a disease peculiar to this employee's employment, and hence, whether it is a communicable disease or not was immaterial. Furthermore, it would be compensable as a part of the injury to the employee through having developed from the influenza. The conditions which comprised the occurrence—that is, the happening or event in this case—comprised all of the exposure to which the employee was subjected, together with their effect on his body, being the entire transaction to which the influenza was traced.

The compensation commissioner found that the influenza arose out of and in the course of the employment of this employee. The common judgment, which this court shares, would ascribe, in the absence of facts to the contrary, the influenza to the conditions under which the employee worked, and, supplemented as these were by the fact that all the medical testimony agreed that these conditions of exposure might be the cause of influenza, and further by the opinion of the plaintiff's medical expert that these conditions were the cause of the influenza, this court concludes that the subordinate facts did support the conclusions of the commissioner that the influenza was a personal injury within the Connecticut workmen's compensation act as amended, and that it did arise out of and in the course of the employment, and that the pneumonia which developed from the influenza was a part of the injury resulting from it.

Not Required to Investigate Health of Employees

(Willey v. Alaska Packers' Ass'n (Calif.), 238 Pac. R. 1087)

The District Court of Appeal of California, First District, Division 1, in affirming a judgment in favor of the defendant, says that the plaintiff sought to recover damages for the alleged failure of the defendant to provide him with medical and surgical necessities according to the terms of a contract, through which default he contended that he had contracted tuberculosis. He was employed by the defendant to serve as mate on a vessel and as master on a launch, and was one of those who, the shipping articles provided, should "receive medical and surgical attendance and medical and surgical necessities" while engaged under the contract. There was a conflict in the evidence as to whether or not he had ever requested medicine or advised any one of his condition, which question was concluded against him by the verdict of the jury for the defendant.

So far as this court was concerned, this case presented the question of whether or not the defendant corporation was liable in damages for failure to furnish the plaintiff with medical treatment in the absence of a request for it and where there was nothing to bring to the knowledge of the corporation the fact that such service was required. In other words, was the corporation, under its contract, bound to make affirmatively an investigation of the health of its employees in the absence of a demand so to do? This court does not think that any such duty rested on the corporation. If the ailment or injury was of such a character as for it to be perfectly apparent that aid was required to relieve it, there could be no question but that it would be the duty of the corporation to furnish aid, even though it was not asked for. But where, as here, the plaintiff himself did not consider himself sick, and made no complaint, nor asked for aid or assistance, the corporation was not bound to acquaint itself at its peril of the plaintiff's latent ailment. The law imposes no such duty on an employer, and it would be an unreasonable construction of the contract to hold that the defendant corporation was, by reason thereof, under a legal contractual obligation to examine, from time to time, every one of its numerous employees to ascertain whether they might be suffering from some secret affliction. So to hold would be to declare an employer, under such circumstances, an insurer of the health of his employees. Such is not the law.

An instruction was a proper one which told the jury that if it believed from the evidence that the plaintiff contracted tuberculosis by reason of his own gross negligence and failure to exercise proper care for his own health, he was not entitled to recover in this action. A shipowner is not liable for damages on account of the sickness of a seaman when his gross negligence was a contributory cause of his sickness. The question as to whether or not the plaintiff had contracted the disease complained of through failure to make his condition known was one of fact for the jury.

Hearing denied by the Supreme Court of California.

Court Must Determine Competence of Proposed Expert

(Hurd v. Spokane International Ry. Co. (Idaho), 238 Pac. R. 891)

The Supreme Court of Idaho says, in this personal injury case, that the Idaho statute is silent on the subject of any of the classes engaged in attempting to treat physical or mental ailments being expert witnesses, and therefore the question as to the competence of the proposed expert must be determined in the first instance by the court, and should be settled before he is allowed to testify. The admissibility of expert testimony is for the court, while its weight is for the jury. If no objection is made as to the witness being qualified when such testimony is offered, his competence as an expert cannot be raised for the first time in the supreme court.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Dallas, April 19-23. Dr. Olin West, 535 N. Dearborn Street, Chicago, Secretary.

American Association of Pathologists and Bacteriologists, Albany, New York, April 2-3. Dr. H. T. Karsner, Lakeside Hospital, Cleveland, Secretary.

American Proctologic Society, Indianapolis, April 16-17. Dr. William A. Rolfe, 331 Beacon Street, Boston, Secretary.

American Society of Clinical Pathologists, Dallas, April 15-17. Dr. Ward T. Burdick, Metropolitan Building, Denver, Colo., Secretary.

Louisiana State Medical Society, Monroe, April 15-17. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Medical Women's National Association, Dallas, April 18-19. Dr. Lena K. Sadler, 533 Diversey Parkway, Chicago, Secretary.

New York, Medical Society of the State of, New York City, March 29-April 1. Dr. D. S. Dougherty, 17 W. 43d St., New York City, Sec'y.

Oregon State Medical Society, Portland, April 1-2. Dr. F. D. Stricker, Medical Arts Building, Portland, Secretary.

South Carolina Medical Association, Sumter, April 6-8. Dr. E. A. Hines, Seneca, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

1: 129-249 (Dec.) 1925

Cardiac Infarction (Coronary Thrombosis). H. A. Christian, Boston.—p. 129.
*Manner of Death in Coronary Thrombosis. F. T. Fulton, Providence, R. I.—p. 138.
*Vasodilatation Following Sympathetic Neurectomy. G. E. Brown and L. G. Rowntree, Rochester, Minn.—p. 144.
*Effect of Sleep on Normal and High Blood Pressure. H. E. Campbell and M. A. Blankenhorn, Cleveland.—p. 151.
Venous Pressure Responses to Exercise in Patients with Heart Disease. H. L. White, P. S. Barker and D. S. Allen, St. Louis.—p. 160.
*Comparative Rate of Absorption of Fresh and of Old Tinctures of Digitalis. D. Vander Hoof and C. C. Haskell, Richmond, Va.—p. 165.
*Independence of Electrical and Mechanical Reactions in Mammalian Heart. C. J. Wiggers, Cleveland.—p. 173.
*Gonococcic Bacteremia with Gonococcic Endocarditis and Aortitis: Case. H. H. Riecker, New York.—p. 191.
*Value of Roentgen Ray in Determining Cause of Aortic Regurgitation. P. V. Ledbetter, Houston, Texas, G. W. Holmes and P. D. White, Boston.—p. 196.
Experimental Heart Disease. I. Methods of Dividing Hearts: Sectional and Proportional Weights and Ratios for Two Hundred Normal Dogs' Hearts. G. R. Herrmann, New Orleans.—p. 213.
*Progression of Chronic Valvular Heart Disease. F. M. Smith, Iowa City.—p. 232.
*Basal Metabolism in Organic Heart Disease. M. W. Lev and W. W. Hamburger, Chicago.—p. 240.

Manner of Death in Coronary Thrombosis.—A large percentage of the patients with coronary thrombosis die as a result of that condition. Death is frequently sudden and often occurs when the general condition has improved and the patient seems on a fair way to recovery. In a series of twenty cases observed by Fulton and followed until their termination, eleven patients died. Seven of them died suddenly. The shortest time from onset until death was about two hours; the longest, four years. In the seven fatal cases, the condition just before the moment of death justified a hopeful prognosis in all of them, especially in five. In only one of the four gradually fatal cases was there abatement of symptoms after the onset or reason to expect anything but fatal issue. No necropsies were performed in any of these cases. In two of the cases, the weight of evidence seems in favor of the opinion that death occurred from heart block. Three others died while lying in bed, without a moment's warning. Two others died on the seventh and ninth day very abruptly. They had been desperately ill and had greatly improved until the day of death. On that day there was a slight recurrence of the pain and discomfort lasting for a few hours, and this was followed by an abrupt termination. One patient died in great pain with a gradually failing heart, four hours after the onset. One died thirty hours after onset, with gradually developing edema of the lungs. One other died twenty-one days from the onset, with recurrence of symptoms on the thirteenth day. Tachycardia developed on the seventeenth day, lasting four days until the heart ceased from exhaustion. Fulton is of the opinion that there is good reason for believing that ventricular fibrillation is the most common cause of sudden death in this condition.

Vasodilatation Following Sympathetic Neurectomy.—During the last three years, approximately fifty patients with Buerger's disease have been studied at the Mayo Clinic. The cases are reviewed by Brown and Rowntree. In the groups of organic obliterative cases, twenty-four Leriche-Handley operations were performed on seventeen patients. Because results were not satisfactory, this operation has been abandoned in the obstructive type of vascular lesion. A unilateral operation was performed in one case of erythromelalgia that had lasted twenty years. The operation brought no relief. The perivascular injection of alcohol in a second case also failed to relieve. In the vasomotor group of cases, two patients with Raynaud's disease were subjected to the same procedure. In one case the result was negligible. In the other, bilateral operations were performed on the arms, with excellent results on the left and failure on the right. A Leriche-Handley operation was performed under local anesthesia on the left femoral artery in Scarpa's triangle in a case of marked hypertension, chronic nephritis, arteriosclerosis and terminal uremia. The course of the disease was in no way affected, and no significant change in the general blood pressure or in that of either extremity could be determined. It was felt, however, that this was hardly a fair test, since the patient was not far from moribund at the time of the operation.

Effect of Sleep on Blood Pressure.—The effect of sleep on blood pressure was studied by Campbell and Blankenhorn in the case, first, of twenty-five normal young men at basal conditions. These showed a drop of blood pressure from 110 to 101 by falling asleep. The greatest drop, due solely to sleep, comes at about the fourth hour of sleep, but this lower level continues throughout the sleeping state. There is a slowing of pulse in sleep parallel to the drop in blood pressure. Of thirty-six patients with elevated blood pressure, only one showed a normal fall of blood pressure in sleep. Sixteen showed a fall due to sleep, which reached a level regarded as normal by ordinary criteria. Twenty showed less fall, varying from no change at all to more or less greater change, but remaining abnormal throughout. Patients whose blood pressure fell to normal in sleep had less evidence of disease, less disability and less elevation of blood pressure. Patients who maintained an elevated blood pressure in sleep showed more signs of disease, and had more disability and more elevation of blood pressure.

Effect of Age on Digitalis Tincture.—The results of their experiments lead Vanderhoof and Haskell to conclude that tincture of digitalis does not "deteriorate" with age when it is tested and employed intravenously, but that a definite "loss of absorbability" occurs with the passage of time, and that this change interferes to an almost equal extent with absorption from the lymph sac of the frog, from the alimentary tract of the cat and from the alimentary tract of man.

Heart Action.—Wiggers' results favor the view that electrical variations are an accompaniment of impulse conduction which precedes the actual contraction process of the heart by a definite interval.

Gonococcic Endocarditis.—Riecker reports a case of gonococcic endocarditis, gonococcic bacteremia with terminal hemolytic streptococcic bacteremia, and septicemia superimposed on chronic endocarditis. The time of onset of symptoms was about two months after the appearance of acute urethritis. The clinical diagnosis was confirmed by positive broth blood cultures for gonococci taken five days before death, and by necropsy findings, all of which were characteristic of the disease. The principal interest in the case was the presence of mycotic aortitis, with rupture of the aorta into the pericardium, the etiologic factor being the gonococcus.

Value of Roentgenoscopy in Aortic Regurgitation.—Thirty-four cases of aortic regurgitation of various types have been studied by Ledbetter, Holmes and White, with particular reference to the roentgen-ray findings. It was found that the roentgen ray is a distinct help in differentiating between aortic regurgitation of syphilitic, rheumatic, arteriosclerotic and hypertensive origin. The chief points of differentiation are discussed.

Prognosis of Chronic Valvular Disease.—In forty patients with chronic valvular heart disease, the progress of the cardiac disability was studied by Smith for a period of from three to six years. The disease definitely progressed in twenty-eight cases. In thirteen of the twenty-eight, the condition terminated fatally. The progression of the disease was indicated by an increase in the size of the heart. In some cases there was, in addition to this feature, a change in the character of the murmur or the development of a new murmur. In others, auricular fibrillation became established or conduction defects were found by means of the electro-

cardiogram. An active cardiac infection was considered to be largely responsible for the progression of the disease.

Basal Metabolism in Organic Heart Disease.—Seventy-five per cent of the cases of organic heart disease with decompensation made the subject of study by Lev and Hamburger showed an increased basal metabolic rate of an average of 39 per cent above normal. The increase in basal metabolic rate is not related directly to the type of heart involvement, arrhythmia, cyanosis or edema, but seems to vary only with the degree of decompensation and the cardiac and respiratory rate. The high basal metabolic rate decreases gradually with the return of compensation, but remains high or goes higher as decompensation continues or becomes more pronounced. In a case of paroxysmal tachycardia, the basal metabolic rate increased 11.1 per cent during the paroxysm. In a normal subject, artificially induced tachypnea resulted in a 17.5 per cent basal metabolic rate increase. The authors assume that it is probable that the increased work of the heart and the increased activity of the muscles of respiration are responsible for the increase in basal metabolic rate in organic heart disease with decompensation, although the possibility of other factors may be considered, notably a thyroid factor, from transient hyperthyroidism during decompensation, or changes in the thyroid circulation from long standing congestion of the superior circulation.

American Journal of Obstetrics and Gynecology, St. Louis

10: 765-896 (Dec.) 1925

*Pyelographic Findings in Pyelitis Complicating Pregnancy. J. T. Williams, Boston.—p. 765.
*Hermaphroditismus Externus Femininus. W. B. Bell, Liverpool, Eng. —p. 778.
*Cancer of Uterus: Treatment by Irradiation. W. P. Healey, New York. —p. 789.
Benign Perforating Duodenal Cyst Arising from Vestigial Remains of Wolffian Body. M. E. Vogt, Philadelphia.—p. 798.
Histologic Interrelationships of Menstruation and Ovulation. E. Novak, Baltimore.—p. 802.
Delayed Chloroform Poisoning Following Delivery. G. D. Royston, St. Louis.—p. 808.
Ovarian Tumors Complicating Pregnancy: Six Cases. C. B. Ingraham, Denver.—p. 815.
*Use of Insulin in Eclampsia. H. J. Stander and E. E. Duncan, Baltimore.—p. 823.
*Eclampsia, Unusual Nonprotein Nitrogen in Blood: Case. R. D. Mussey, Rochester, Minn.—p. 826.
New Instrument (Cervical Endocleaner) for Treatment of Endocervicitis. S. di Palma, New York.—p. 829.
Report of 106 Cases of Extra-Uterine Pregnancy. H. E. Stein, New York.—p. 833.
Spontaneous Rupture of Umbilical Cord; Two Cases. R. S. Siddall, Detroit.—p. 836.
Roentgenographic Diagnosis of Anencephaly. L. Rudolph, Chicago.—p. 840.
Statistical Survey of Obstetrics in Pasadena. J. S. Hibben, Pasadena, Calif.—p. 843.
Efficiency and Inefficiency of Theories. Special Reference to Gynecology and Obstetrics. A. Plaut, New York.—p. 848.
Lymphangioma of Fallopian Tube: Two Cases. L. W. Strong, New York.—p. 853.
*Case of Premature Labor with Survival of Child. E. C. Lyon, Jr., New York.—p. 856.
*Intraligamentous Pregnancy. W. T. Kennedy, New York.—p. 858.
Minnesota Maternity and Infancy Program. E. C. Hartley, St. Paul. —p. 863.

Pyelitis Complicating Pregnancy.—The facts stressed by Williams in this study lie in a proper conception of pyelitis during pregnancy, not as a condition due directly to the pregnancy but as, in the majority of cases, at least, a chronic preexisting condition brought to a state of acute activity by the pregnancy, and not to be dismissed without further consideration after the pregnancy has terminated. The mechanism of the attacks of pyelitis during pregnancy appears to be as follows: a prolapsed kidney with dilated pelvis, with or without a kinked ureter; additional strain on the excretory apparatus during pregnancy, with later some ureteral compression by the fetal head; urinary stasis; infection with *Bacillus coli;* recovery from acute symptoms after drainage is secured by ureteral catheterization or the end of the pregnancy; but persistence of the original conditions which predisposed to the acute attack leaving the way open to further trouble.

External Feminine Hermaphroditism.—Bell reports four cases. The essential points in regard to this type of intersexuality are as follows: 1. Female internal genitalia are present, but the ovaries, fallopian tubes, uterus and vagina are poorly developed. 2. The external genitalia are feminine in type, except for the greatly hypertrophied phallus and the partial obscuration of the vaginal orifice by the fourchette, which is farther forward than normal. 3. The secondary characteristics, physical and psychic, are chiefly masculine, although in adult life the sexual inclination may be toward the male. Usually, there is precocity in regard to the development of the secondary characteristics.

Radiotherapy for Cancer of Uterus.—Healy is of the opinion that the evidence at hand shows that the careful, continuous, intensive treatment of all cases of carcinoma of the cervix with combined radium and roentgen-ray therapy is justified and that hysterectomy is no longer necessary. In fact, evidence is accumulating to indicate that hysterectomy for carcinoma of the cervix, even when combined with preoperative or postoperative irradiation, or both together, may be a serious handicap to the patients' obtaining the full benefit of irradiation therapy.

Use of Insulin in Treatment of Eclampsia.—The treatment of eclampsia employed by Stander and Duncan is as follows: As soon as the patient is admitted, the modified Stroganoff treatment is started; a specimen of blood is obtained and a chemical analysis done immediately. The sugar and carbon dioxide values are carefully noted, and should these show an undue rise in the blood sugar and a decrease in the carbon dioxide combining power, from 15 to 25 units of insulin is administered. Usually a protective dose of glucose, about 2 Gm. per unit of insulin, is also given. With a marked hyperglycemia, it is, perhaps, not necessary to give glucose with the insulin, but in such cases it is advisable to have orange juice available should the patient develop a hypoglycemia. A drop in the blood sugar level and a rise in the carbon dioxide combining power, as well as a change from coma to consciousness, usually follow the administration of insulin. The indications for the use of insulin in eclampsia are coma or semiconsciousness following a convulsion, together with a carbon dioxide combining power of 30 or below and an elevated blood sugar. The dosage of insulin is gaged by the degree of hyperglycemia and the weight of the patient.

Unusual Nonprotein Nitrogen Retention in Eclampsia.—The notable feature of Mussey's case was the unusual retention of nonprotein nitrogen in the blood. The third day in the hospital, the urea was 168 mg. and the uric acid 18.3 mg. for each 100 cc. of blood, and on the fifth day the urea was 221 mg., creatinine 14.5 mg., and uric acid 14.5 mg. There was complete phenolsulphonphthalein retention, and very low specific gravity of the urine. The clinical recovery was steady and apparently complete. The nonprotein nitrogen retention gradually lessened to 194 mg. of urea on the tenth day, and to 139 mg. on the fourteenth day. On the seventeenth day, 43 mg. of urea, 3.5 mg. of creatinine and 3.1 mg. of uric acid were found for each 100 cc. of blood. The phenolsulphonphthalein function test on the eighteenth day was 30 per cent. Examination of the patient two months after her admission revealed normal renal function.

Premature Labor with Survival of Child.—Lyon's patient was delivered 192 days after the first day of her last period. The baby weighed 2 pounds and 11 ounces (1.2 Kg.), was 35 cm. long, and appeared to be very premature and weak. Although this baby had a precarious existence at the start, and overcame many vicissitudes, he is now at 16 months a strong, sturdy boy, apparently normal in every respect.

Intraligamentous Pregnancy.—Kennedy reports a case of left intraligamentous full term pregnancy with preoperative dead fetus, the mother living.

American Journal of Pathology, Boston

1: 547-702 (Nov.) 1925

*Rabies: Neural Transmission of Virus in Rabbits: Structure and Significance of Negri Bodies. E. W. Goodpasture, Nashville, Tenn.—p. 547.
*Diffuse Tumors of Meninges. W. Boyd, Winnipeg, Can.—p. 583.
*Splenomegaly (Type Gaucher) and Lipoid-Histiocytosis (Type Niemann). W. Bloom, Chicago.—p. 595.

*Ependymomas of Lateral and Fourth Ventricles of Brain. E. F. Hirsch and A. R. Elliott, Chicago.—p. 627.
Vaccine Virus in Vitro: Affinity for Nerve Tissue. N. Hirano, Nagasaki, Japan.—p. 635.
Spontaneous Central Nervous System Lesions in Laboratory Rabbit. L. Bender, Iowa City.—p. 653.
Experimental Production of Gliosis. I. Effects on Nervous System of Rabbit of Intravenous and Intraspinal Injections of Cholesterol Emulsion. L. Bender, Iowa City.—p. 657.
Id. II. Reaction of Brain Tissue to Lipoid Fractions and Residue of Brain Extracts. L. Bender, Iowa City.—p. 667.
*Multinucleated Liver Cell Carcinoma. H. S. Rowen and F. B. Mallory, Boston.—p. 667.

Rabies; Nature of Negri Bodies; Neural Transmission of Virus.—Goodpasture has infected rabbits with rabies fairly regularly by inoculating them with street virus into the right masseter muscle. It is believed that the virus enters the central nervous system through nerves supplying the inoculated muscle. A method of staining to demonstrate Negri bodies is described. A distinction is drawn between Negri bodies and "lyssa bodies," based on structural differences. "Lyssa bodies" were much more numerous in these animals than typical Negri bodies. A degenerative change in the neurofibrillar substance of ganglion cells and their processes is described, which leads to the formation of bodies identical with "lyssa bodies" and with the eosin-stainable substance of Negri bodies. It is believed that "lyssa bodies" are formed directly from such an alteration of neurofibrillar material in a portion of the living cell, with or without the inclusion of inner structures. Degenerative changes are described in the mitochondrial material of axis cylinders and nerve cells leading to the formation of structures which closely resemble the "Innenkörper" of Negri bodies. It is believed that the typical Negri bodies are formed within the living cell by a focal degeneration of neurofibrillar material which melts together and coagulates or coheres about one or more of the structures which result from mitochondrial degeneration. The inclusion of these bodies gives the characteristic architecture to Negri bodies, which alone serves to distinguish them from "lyssa bodies." The hypothesis is advanced that the degenerative changes observed in axis cylinders are the result of the passage of the virus along these processes, and indicate its manner of extension from one focus to another. The material resulting from the degeneration of mitochondria may serve as a favorable medium for the growth and spread of the virus.

Diffuse Tumors of Meninges.—Boyd is of the opinion that diffuse infiltration of the meninges with tumor cells, commonly known as diffuse sarcomatosis of the meninges, is, in the great majority of cases, a secondary condition. The mechanism of the meningeal involvement is invasion of the cerebrospinal fluid with tumor cells from some focus standing in intimate relation to the fluid, such as the choroid plexus or the wall of the ventricles. A clinical diagnosis of the condition may be made from the discovery in the spinal fluid of large pale cells in considerable numbers.

Splenomegaly of Gaucher Type.—Two cases are reported by Bloom, that of a boy, aged 6 years, and that of a woman, aged 42, in whom there was a history of longstanding increase in the size of the spleen, leukopenia, mild secondary anemia, and epistaxis in one case and uterine bleeding in the other. Three cases of the condition first described by Niemann are also reported occurring in infants, aged 18, 14 and 7 months, respectively. The history in the first two of these cases was of long continued disturbance in feeding and a failure of the infants to develop. The third patient died of meningitis at a comparatively early period in the disease. One case was recognized in vivo. The patient improved considerably for two months after removal of his spleen, but then he began to fail again.

Ependymomas of Brain.—Two cases of ependymomas of the brain are reported by Hirsch and Elliott. One, primary in the lateral ventricle, had the infiltrative qualities of a malignant tumor, while the other, in the fourth ventricle, was chiefly an expansile growth pushing aside the adjacent tissues. This difference in growth suggests that certain ependymomas are benign while others are malignant, and that growth characteristics should be recognized in the general class of tumors arising from the ependyma.

Multinucleated Liver Cell Carcinoma.—A report is made by Rowen and Mallory of a liver cell carcinoma containing many huge multinucleated tumor cells which originated from multiple mitoses. In addition, reference is made to seven other tumors of the same type, but without multinucleated cells, occurring in 6,506 consecutive necropsies. Six of the eight cancers were associated with definite cirrhosis, which was of the pigment type in three instances. In the other three cases, the cirrhosis was a combination of the pigment and alcoholic types. Judging from these examples and others in the literature, pigment cirrhosis is the type which is most commonly complicated by liver cell carcinoma.

American Journal of Roentgenology and Radium Therapy, New York

14: 487-602 (Dec.) 1925

*Cholecystography. E. A. Graham, W. H. Cole and G. H. Copher, St. Louis.—p. 487.
Cholecystography. M. C. Sosman, L. R. Whitaker and P. J. Edson, Boston.—p. 495.
*Jejunal and Oral Administration of Tetra-Iodophenolphthalein Sodium Salt. W. H. Stewart and E. J. Ryan, New York.—p. 504.
*Cholecystography and Operative Results in 182 Cases. J. A. Saralegui, Buenos Aires, Argentina.—p. 513.
Giant Cell Tumor of Middle Third of Shaft of Fibula. B. R. Kirklin, Muncie, Ind., and W. D. Gatch, Indianapolis.—p. 521.
*Barium Sulphate as Protective Material Against Roentgen-Ray Radiation. F. L. Hunt, Washington, D. C.—p. 524.
*Radiation Reaction of Metastatic Squamous Cell Carcinoma in Cervical Lymph Nodes. D. Quick and M. Cutler, New York.—p. 529.
Radiotherapy in Inoperable Carcinoma of Cervix. C. D. Brooks, Detroit. —p. 541.
Evaluation of Treatment of Carcinoma of Cervix with Radium. W. P. Healy, New York.—p. 542.
Suggestions Regarding Radium Treatment of Rectosigmoid Carcinoma. J. T. Case, Battle Creek, Mich.—p. 547.
Statistical Study of Radiation Therapy in 801 Cases of Breast Carcinoma. G. E. Pfahler and B. P. Widmann, Philadelphia.—p. 550.

Cholecystography.—Cholecystography, as a method of diagnosis, Graham et al. state, has been found correct in 96.25 per cent of eighty patients on whom it has been possible to test the diagnosis by means of an operation.

Cholecystography Aid in Diagnosis of Gallbladder Disease.—According to Stewart and Ryan, it is much easier on the patient to administer tetra-iodophenolphthalein by mouth and obtain a gallbladder shadow than to do a pyelography and outline the kidney pelvis; in either case, one ought to be able to make the differentiation.

Iodine Salt in Cholecystography.—Saralegui prefers the iodine salt for cystography because it is twice as opaque to the roentgen ray as the bromine salt, and hence 30 per cent less of the salt needs to be used to get the same results. He uses 0.045 Gm. per kilogram of body weight in 10 per cent solution in freshly distilled water. Results from its use have been very good.

Barium Sulphate and Portland Cement Plaster Protects Against Roentgen-Ray Effects.—Hunt uses a plaster consisting of barium sulphate, 75 per cent; Portland cement, 25 per cent. Layers of plaster not less than 25 mm. thick should be used for 100 kv. of roentgen rays, and not less than 70 mm. when 200 kv. equipment is used. In view of the nonhomogeneous nature of the material, as shown by experiments, these values represent the minimum thickness consistent with safety and, where practical, somewhat thicker layers are recommended.

Radiation Reaction of Lymph Node Carcinoma.—Marked destructive effects on squamous cell carcinoma were obtained by means of intensive irradiation with combined high voltage roentgen rays or radium alone, or in combination. Small doses of radiation which had little or no effect on the squamous cell were found to cause rapid and effective regression of the transitional type of tumor cell. Intensive irradiation with repeated high voltage roentgen rays and radium did not injure the tissues adjacent to the tumor; on the contrary, a stimulating effect on the tumor bed has been observed frequently.

Boston Medical and Surgical Journal

193: 1231-1282 (Dec. 31) 1925

*Use of Acidified Milk in Infant Feeding. C. K. Johnson, Burlington, Vt.—p. 1231.
*Streptococcic Infection of Anterior Angle of Naris. D. W. Montgomery and G. D. Culver, San Francisco.—p. 1232.
Novasurol: Effective Agent in Relieving Ascites Complicating Cirrhosis of Liver. J. G. Anderson, Rochester, Minn.—p. 1234.
*Hyperglycemia (1.71 per Cent) with Coma; Absence of Acetone in Urine. W. P. Argy, Washington, D. C.—p. 1236.
Interstitial Pregnancy: Case. A. S. Troupin, Boston.—p. 1237.
Recurrent Oculomotor Paralysis: Case. R. M. Stetcher, Boston.—p. 1239.
Anencephalic Monster: One of Twins. H. K. Thompson, Boston.—p. 1241.

Acidified Milk in Infant Feeding.—Johnson has obtained good results from the use of milk, 1 pint, acidified with 40 drops of lactic acid and sweetened with 2 tablespoonfuls of Karo syrup. The series treated included cases of pyelitis, osteomyelitis, tuberculosis, meningitis, dysentery and congenital syphilis. Many of these infants were under weight, and more than 50 per cent were under 3 months of age. The average number of calories given was 70 to the pound, seventeen infants receiving as high as 90 calories. Vomiting and diarrhea were seldom seen, and none died of gastro-intestinal disturbance from overfeeding. In 1919, the mortality for marasmic infants was 78 per cent. In 1923, the second year of lactic feeding, the mortality was 26 per cent.

Treatment of Streptococcic Infection of Nares.—Narinary streptococcic infection is treated by Montgomery and Culver by the application of an ointment containing either calomel or mercuric oxide, ½ drachm to the ounce of equal parts of hydrous wool fat and petrolatum. Before applying the ointment, the long, stout vibrissae are clipped and then the nostril is well soaked with warm boric acid solution. After a thorough soaking to soften well all crusts and the epithelium, the ointment may be introduced, care being taken to massage it thoroughly into the angle and into the fossa.

Diabetic Coma Without Ketonuria.—A case is reported by Argy of coma, in a colored man, aged 33, with typical symptoms of diabetes mellitus, existing over a period of six months and ending in death. It was marked by an absence of ketonuria, a high blood sugar concentration (1.71 per cent) and a large amount of acetone in the spinal fluid.

Journal of General Physiology, Baltimore

8: 189-302 (Jan. 4) 1926. Jacques Loeb Memorial Volume

Application of Theory of Quanta to Peripheral Vision. P. Lasareff.—p. 189.
Influence of Electrolytes on Electrophoretic Migration of Bacteria and Yeast Cells. C. E. A. Winslow and E. H. Fleeson, New Haven, Conn.—p. 195.
Influence of Alcohol on Growth of Seedlings. R. Pearl and A. Allen, Baltimore.—p. 215.
Time Relations of Growth. I. Genetic Growth Constants of Animals. S. Brody, Columbia, Mo.—p. 233.
Geotropism and Muscle Tension in Helix. W. H. Cole, Worchester, Mass.—p. 253.
Ferment-Action and Ion Antagonism. R. Höber and A. Schürmeyer, Kiel, Germany.—p. 265.
Formation and Ionization of Compounds of Casein with Alkali. IV. D. M. Greenberg and C. L. A. Schmidt, Berkeley, Calif.—p. 271.
Circulation, Blood Pressure and Respiration of Sharks. E. P. Lyon, Minneapolis.—p. 279.
Effect of Exposure Period and Temperature on Photosensory Process in Ciona. S. Hecht, Naples, Italy.—p. 291.

Michigan State Medical Society Journal, Grand Rapids

25: 1-48 (Jan.) 1926

Evolution of Clinical Teaching in University of Michigan Medical School. V. C. Vaughan, Detroit.—p. 1.
Address on Occasion of Dedication of New Hospital of University of Michigan, Nov. 19, 1925. W. S. Thayer, Baltimore.—p. 4.
Teaching Hospital of University of Michigan. W. J. Mayo, Rochester, Minn.—p. 9.
*Treatment of Uterine Fibromyomata. H. W. Hewitt, Detroit.—p. 13.
Nonoperative Treatment of Cataract. R. J. Sisson, Detroit.—p. 17.
*Radical Cure of Femoral Hernia. R. H. Crissey, Lansing.—p. 18.
Splenic Syndromes. W. J. Mayo, Rochester, Minn.—p. 19.
Medical Policies. F. D. Robertson, Grand Rapids.—p. 24.
*Case of Dextrocardia. L. T. Colvin, Detroit.—p. 12.

Treatment of Uterine Fibromyoma.—Hewitt says that symptom producing fibroids are surgical and should be treated by the surgeon or under his supervision. Roentgen ray or radium may be used in uncomplicated tumors when the only symptom is hemorrhage. Roentgen ray or radium should be used where surgery is contraindicated, as in cases with severe anemia, pulmonary tuberculosis, diabetes, or severe cardiorenal disease. Surgery is the treatment of choice in (*a*) all tumors of the reproductive period; (*b*) all tumors associated with adnexal disease; (*c*) all tumors associated with degeneration or carcinoma, and (*d*) all tumors causing pressure, hemorrhage or other acute symptoms.

Operation for Femoral Hernia.—By a reflection upward of the pectineus fascia, Crissey secures a complete anatomic closure of the femoral canal; that is, by reflecting the iliac fascia upward, making it continuous with fascia transversalis on the anterior abdominal wall.

Dextrocardia; Electrocardiograms.—True inversions cause a change in the electrocardiogram as if the arm leads were interchanged; i. e., an inversion of all waves in lead I, and leads II and III interchanged. The dextroversions affect the electrocardiogram only by the change in cardiac axis varying the height of the waves. The characteristic electrocardiogram of the transpositions is due, therefore, not to the position of the heart, but to the relative positions of the intracardiac cavities. Colvin's case was one of dextroversio cordis, one of about sixty reported.

Missouri State Medical Association Journal, St. Louis

23: 1-43 (Jan.) 1926

Reflections of Internist on Thyroid Problem. C. H. Neilson, St. Louis.—p. 1.
Surgical Management of Goiter Patient. H. S. McKay, St. Louis.—p. 4.
Choice of Anesthetic in Goiter Operations. E. Fischel, St. Louis.—p. 6.
Pathology of Thyroid Hyperplasia. R. L. Thompson, St. Louis.—p. 9.
Radiotherapy of Goiter. E. H. Skinner and I. H. Lockwood, Kansas City.—p. 11.
*Dick Test and Immunization in Scarlet Fever. P. S. Astrowe and D. M. Nigro, Kansas City.—p. 14.
Development and Application of Cholecystography. S. Moore, St. Louis.—p. 17.
Cardiovascular Diseases: Knowledge in First Quarter of Twentieth Century. L. Clendening, Kansas City.—p. 22.
Calcification in Posterior Chamber of Eyeball; Case. W. Spaulding, Poplar Bluff.—p. 26.

Dick Test and Immunization in Scarlet Fever.—Astrowe and Nigro used the Dick test in 573 cases and found it to be of value in differentiating susceptible from immune cases. Negative Dick reactors have not contracted scarlet fever although constantly exposed, while positive Dick reactors have contracted the disease. The authors feel that the test is a safe procedure to employ in routine work; that a negative reaction can be interpreted as indicating immunity to scarlet fever, and that immunization is a safe procedure and is not accompanied by serious reactions.

New Orleans Medical and Surgical Journal

78: 419-482 (Jan.) 1926

Swift-Ellis Treatment of Syphilis. C. Jamison, New Orleans.—p. 419.
Fear. L. V. Lopez, New Orleans.—p. 423.
Sarcoma of Nasopharynx. D. C. Montgomery, Greenville, Miss.—p. 428.
Major Defects of Eye, Ear, Nose and Throat as Seen by Memphis Marine Recruiting Station. R. Harris, Memphis.—p. 434.
Significant Pathology of Scarlet Fever: Prevention. C. W. Duval, New Orleans.—p. 436.
Complications Incident to Operative Treatment of Simple Goiter. A. P. Heineck, Chicago.—p. 440.
*Treatment of Pertussis by Intramuscular Injections of Ether. J. E. Pollock, New Orleans.—p. 450.
Some of Commoner Diseases of Chest in Early Life. N. C. Womack, Jackson, Miss.—p. 453.
Acidosis in Infancy. R. E. De La Houssaye, New Orleans.—p. 456.
Abdominal Surgery Under Local Anesthesia. C. W. Allen, New Orleans.—p. 459.
Two Years Under Sheppard-Towner Act. F. E. Kraker, Washington, D. C.—p. 461.

Ether Injections in Pertussis.—Pollock reports the results following on the ether treatment of 107 cases of pertussis. Fifty per cent showed marked improvement after the second injection, or within seventy-two hours; 20 per cent, after the third injection, or in four or five days; 20 per cent required four injections to control the paroxysms, and 10 per cent required from five to seven injections, the largest number of injections made, and a space of twelve days entirely to relieve the condition. Those cases requiring the larger number of

injections gave evidence of being mixed infections, probably with the influenza bacillus. Taking the series as a whole, all patients improved before the sixth day of treatment. The injections were given into the buttock every forty-eight hours. The amount injected varied with the age and weight of the patient, the severity of the disease, and the results obtained by the first injection; the dose being increased if the first injection showed no results. The amount given at one injection varied from 0.5 to 2 cc. The largest doses did not cause any untoward effects that could be noted.

New York State Journal of Medicine, New York

26: 1-42 (Jan.) 1926

Uses of Psychotherapy in General Medical Treatment. A. F. Riggs, Stockbridge, Mass.—p. 1.
Mental Hygiene: Relation to General Medicine. C. M. Campbell, Cambridge, Mass.—p. 6.
Value of Blood Transfusions in Postoperative Mastoid Conditions, with Especial Reference to Suspected Sinus Thrombosis. H. Hays, New York.—p. 10.
Surgery of Bladder (Local Anesthesia Technic). W. S. Pugh, New York.—p. 15.
*Trichinosis in Children. J. Aikman, Rochester.—p. 20.

Trichinosis in Children.—Ten cases of trichinosis were found in Rochester from September, 1923, to February, 1924. Aikman says that the disease cannot be ruled out by a low eosinophil count, because this may be present during the acute stage. In many cases the diagnosis may be cleared up by spinal puncture and examination of centrifugalized spinal fluid.

Radiology, St. Paul

6: 1-90 (Jan.) 1926

*Oral Administration of Sodium Tetra-Iodophenolphthalein for Cholecystography. J. Brams, K. A. Meyer and W. A. Brams, Chicago.—p. 1.
*Toxic Goiter: Treatment by Radium and Roentgen Rays. J. T. Stevens, Montclair, N. J.—p. 7.
*Hyperthyroidism. A. E. Barclay, Manchester, Eng.—p. 14.
Roentgenographic Examination of Sphenoid Sinuses. A. Granger, New Orleans.—p. 23.
Rôle of Temperature of Opaque Meal in Filling of Duodenal Cap. R. A. Arens and A. R. Bloom, Chicago.—p. 34.
Roentgen-Ray Therapy of Gastric and Duodenal Ulcers and Other Benign Affections of Gastro-Intestinal Tract. R. Lenk and G. Holzknecht, Vienna.—p. 37.
Radioactive Substances: Therapeutic Uses and Applications; Radiotherapy of Cancer of Uterine Cervix. J. Muir, New York.—p. 41.
Outstanding Physical Considerations in Radium and Roentgen-Ray Therapy. D. C. A. Butts, Philadelphia.—p. 47.
Studies on Suspension Stability of Human Blood. II. Changes of Sedimentation Rate of Erythrocytes in Vitro and in Vivo After Roentgen-Ray Exposure. E. A. Pohle, Ann Arbor, Mich.—p. 55.
Radiograph: Analysis of End-Result. E. C. Jerman, Chicago.—p. 59.
*Anomalous Position of Appendix and Cecum. J. C. Keaton, Albany, Ga. —p. 63.
Esophagobronchial Fistula Resulting from Actinomycosis: Case. P. P. Vinson and C. Sutherland, Rochester, Minn.—p. 63.
Brain Tumor: Response to Radiation. J. S. Derr, Atlanta, Ga.—p. 66.
Early Diagnosis and Localization of Brain Tumors. E. R. Carpenter, Dallas, Texas.—p. 67.

Cholecystography with Tetraiodophthalein Sodium.—One hundred cases were examined by Brams, Meyer and Brams following the oral administration of tetraiodophthalein sodium. Forty-three cases were proved at operation to correspond with the roentgenologic diagnosis, and the remaining fifty-five corroborated the clinical diagnosis. In two surgically proved cases the roentgenologic diagnoses were wrong. All untoward effects have been eliminated by reducing the dose of the salt to about 50 grains.

Radiotherapy of Toxic Goiter.—Stevens asserts that radium and the roentgen rays will probably cure from 66 to 75 per cent of cases of toxic goiter. Patients with large tumors, who present symptoms of pressure, ought to be operated on for quick relief. Chronic abscesses or foci of infection should be eradicated in each case of toxic goiter, no matter what treatment is advised. Skill and good judgment are absolutely necessary in the application of radium and of the roentgen rays; otherwise any good results obtained are apt to be accidental.

Roentgenotherapy in Hyperthyroidism.—Of 300 patients with hyperthyroidism treated by Barclay with roentgen rays, 190 are said to have been cured, 74 improved and 16 not improved; 20 were lost sight of; 11 died of intercurrent disease and 4 died of hyperthyroidism.

Anomalous Position of Cecum and Appendix.—In Keaton's case the cecum was on the left side, with the ascending colon running parallel to the transverse colon. The appendix was clearly outlined.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

40: 269-328 (Dec.) 1925

*Immediate Effects of Roentgen Rays on Living Animal Tissues. J. G. Stephens and H. Florey.—p. 269.
*Ammonia in Blood of Epileptics. J. M. Luck, G. Thacker and J. Marrack.—p. 276.
Relation Between Extent of Mitosis Seen in Chick Fibroblasts and Concentration of Embryonic Tissue Extracts Present in Tissue Culture Medium. G. P. Wright.—p. 279.
*Plasma Lipoids in Renal Disease. W. R. Daniels.—p. 283.
Use of Trypsinized Casein, Brom-Thymol Blue, Brom-Cresol Purple, Phenol Red and Brilliant-Green for Bacteriologic Nutrient Mediums. M. Kristensen, V. Lester and A. Jurgens.—p. 291.
*Glycolytic Activation by Tumor Extracts. N. Waterman.—p. 300.
*Effect of Deficiency of Vitamin A on Blood Platelet Count in Rats. A. D. Stammers.—p. 312.
*Diastatic Activity in Blood and Urine. C. Reid.—p. 314.

Effect of Roentgen Ray on Tissues.—The possibility of ultraviolet fluorescence excited within the tissues by roentgen rays is considered by Stephens and Florey as a possible mechanism operating in the production of effects by roentgen rays. Contrary to the results obtained by previous workers, no immediate fall of blood pressure or alteration in respiratory rate occurs during prolonged irradiation. It is suggested that previous results are explicable as being due to electrical leakage, and not to the action of roentgen rays. A method for the insertion of abdominal windows is described. By means of these windows, no changes could be observed in the spleen or other abdominal viscera.

Ammonia in Blood in Epilepsy.—Luck and his associates estimated the ammonia in the blood of fifteen nonepileptic and ten epileptic patients. In the first group it varied from 0.02 to 0.37 mg. per hundred cubic centimeters; in the second group, from 0.06 to 0.326 mg. It appears that high blood ammonia may occur at times in epileptic patients, but not necessarily before fits. From the fact that high blood ammonia occurs regularly in starvation, although fits are often much less frequent, it is impossible to consider high blood ammonia as the cause of fits. An increase of blood ammonia is found in ketosis, whether occurring in starvation or in diabetes mellitus.

Plasma Lipoids in Renal Disease.—The results of the examination of the plasma lipoids and plasma proteins in eighteen cases of renal disease are reported by Daniels. The plasma lipoids were increased in five out of seven cases of chronic parenchymatous nephritis examined. In other forms of renal disorder examined, no similar increase of plasma lipoids was found. The average cholesterol and lecithin values were less than those found in normal persons. The average fatty acid value, on the other hand, slightly exceeded that found in the normals. No quantitative relationship appeared to exist between the plasma lipoids and the plasma proteins.

Glycolytic Activation by Tumor Extracts.—Waterman found it possible to increase the glycolytic activity of normal tissue by addition of tumor extract. The activator substance present in tumor is not specific, as it is also contained in embryonic and to a lesser degree in normal tissue. The different behavior of the tumor cell toward sugar utilization seems to depend only on quantitative differences, caused by the presence of a much larger amount of activator. Regarding the nature of the activator, some properties seem to point to an analogy with an insulin-like substance.

Effect of Vitamin Deficiency on Blood Platelet Count.—Stammers found that no significant changes in the platelet count takes place in experiment animals as a result of vitamin deficiency.

Diastatic Activity in Blood and Urine.—In Reid's opinion it is advisable to estimate the blood diastatic activity in all cases in which the urine diastatic activity is being examined, and especially in those cases which give a urinary diastase

figure toward the lower limits of normality. It would appear that the diastatic concentration factor would serve as an additional confirmatory test to MacLean's urea concentration test, as the figures obtained for both tests in healthy persons and pathologic cases were in general agreement.

Edinburgh Medical Journal

33: 1-48 (Jan.) 1926

Comradeship in Science. J. Purves-Stewart.—p. 1.
Carcinoma of Colon: Incidence, Treatment and End-Results. K. P. Brown.—p. 10.
Action of Colloidal Gum Benzoin on Syphilitic and Nonsyphilitic Human Serums. C. I. B. Voge.—p. 19.
*Estimation of Calcium in Blood and Urine. J. S. Sharpe.—p. 27.
*Treatment for Cutaneous Papilloma. N. R. Houston.—p. 31.

Estimating Calcium in Blood and Urine.—The method described by Sharpe depends on the formation of a cloud by the addition of ammonium oxalate to a protein free calcium solution in glycerin, and a comparison of this with a similar cloud in a standard solution by means of a simple nephelometer. It may be applied to solutions of calcium of from 10 to 15 mg. per hundred cubic centimeters and is accurate to within 0.5 mg. per hundred cubic centimeters.

Arsenic in Treatment of Skin Papilloma.—In sixteen cases Houston gave his patients instructions to swab the warts lightly with a 1 pèr cent solution of liquor arsenicalis (B. P.) three times daily. Some patients required longer treatment than others. If marked local reaction occurred, treatment was suspended until after its subsidence. The reaction is said to have been not nearly so drastic as that caused by the acid and alkali caustics commonly used. It has the added benefits of being easily applied, having no detrimental effect on the surrounding skin and producing a minimum of scar tissue.

Indian Medical Gazette, Calcutta

60: 559-608 (Dec.) 1925

Plea for Research in Treatment of Squint. H. Smith.—p. 559.
Treatment of Incisional Sinuses. G. Gallilay.—p. 559.
Pelvic Measurements in Indian Women. G. Stapleton.—p. 560.
Familial Treatment of Insane. O. Berkeley-Hill.—p. 562.
Abuse of Emetine. G. R. McRobert.—p. 563.
Blood Sugar and Sugar Tolerance. S. L. Bhatia.—p. 565.
Bacteriologic Study of Stools of 746 Clinical Cholera Cases in Calcutta. G. C. Maitra and J. B. Basu.—p. 570.
Organic Antimony Compound, Aminostiburea, for Treatment of Kala-Azar. L. E. Napier.—p. 571.
Latrines and Hookworm Incidence: Diagnosis by Clayton-Lane Centrifuge. R. Senior-White.—p. 572.
Case of Perineal Fistula. B. R. Garg.—p. 575.
*Enlarged Wandering Spleen Mistaken for Ovarian Tumor. J. N. Sen.—p. 576.
*Case of Multiple Neurofibromas. E. B. Carr.—p. 577.
Multiple Soft Fibromas of Face. G. Panja.—p. 578.
Cure for Leukoderma. P. B. Rau.—p. 578.
*Unusual Case of Malaria. N. Ghosh.—p. 579.
Pneumonia and Cellulitis Treated with Iodine Intravenously. S. N. Datta.—p. 579.
Cases of Acute Yellow Atrophy of Liver. Y. S. Row.—p. 580.
Up-Going Toe. M. S. H. Mody.—p. 581.
Syphilitic Dyspnea Simulating Asthmatic Fit. M. G. R. Row.—p. 581.
Case of Malarial Prostatitis with Reflex Retention of Urine. S. L. Chopra.—p. 582.
*Case of Resuscitation After Cessation of Vital Functions for Over Fifteen Minutes. N. C. Kapur.—p. 582.
Case of Bullet Wound of Chest Followed by Pleurisy with Effusion. R. Labhaya.—p. 583.
Case of Transverse Presentation. M. H. Jhaveri.—p. 583.
Intramuscular Injection of Urea Stibamine. S. Kundu.—p. 583.
Case of Pernicious Malaria Treated with Quinine Intravenously. K. N. Chatterji.—p. 584.

Enlarged Wandering Spleen.—The spleen in Sen's case weighed 4 pounds, 12 ounces (2.15 Kg.). It occupied the whole of the lower abdomen from 2 inches (5 cm.) above the umbilicus down to the pelvis, occupying more of the right side of the abdomen. It had been enlarging for two years. Pain was the only symptom complained of and is believed to have probably been due to stretching of the capsule of the spleen due to the sudden enlargement of the organ.

Multiple Neurofibromas.—Carr's patient had numerous spherical fibrous growths of the skin all over the body, varying in size from a pea to an olive, but one of these growths, on the right breast, grew so rapidly that the breast became elephantoid in size and it was for this that the woman sought treatment. Unsupported, the breast reached down to the knee.

Malaria with Unusual Symptomatology.—The points of interest in Ghosh's case were: sudden onset with unconsciousness and convulsions; absence of fever and no enlargement of the spleen at the onset; rise of temperature; recovery of consciousness after first dose of quinine, intravenously; presence of fever for one day only; presence of parasites in peripheral blood films even after eight days' administration of quinine.

Resuscitation After Fifteen Minutes' Cessation of Vital Functions.—Flicking the chest with a cold wet towel caused Kapur's patient to resume breathing after fifteen minutes of complete cessation of respiration, absence of heart sounds and pulse at the wrist.

Journal of Hygiene, London

24: 241-446 (Dec.) 1925

*Bacillus Bifidus: Isolation from Intestine of Infants. R. Cruickshank.—p. 241.
Immunology and Malignant Disease. A. Eastwood.—p. 255.
Monthly Birth Rate in Netherlands. J. Sanders.—p. 274.
*Has Mortality from Cancer Changed in Copenhagen? P. Heiberg.—p. 291.
Rôle of Twort-d'Herelle Phenomenon in Epidemic Spread of Mouse Typhoid. W. W. C. Topley and J. Wilson.—p. 295.
*Principles of Immunity Applied to Protective Inoculation Against Diphtheria. A. T. Glenny.—p. 301.
*Endemic Goiter in New Zealand: Relation to Soil Iodine. C. E. Hercus, W. N. Benson and C. L. Carter.—p. 321.
Topographic Incidence of Cancer in Yorkshire and Midland Counties of England, Including Fenland. M. Young.—p. 403.
Influence of Different Methods of Cleansing Dairy Utensils on Bacterial Content of Churns and Keeping Properties of Milk. F. Procter and W. A. Hoy.—p. 419.
Measles Prophylaxis. W. S. C. Copeman.—p. 427.

Bacillus Bifidus in Intestine of Infants.—Cruickshank says that the predominance of *Bacillus bifidus* in the intestinal flora of breast fed infants appears to be closely related to the high degree of acidity of the feces of these infants. It is probable that the predominance of *B. bifidus* over other organisms is an important factor in preserving a healthy condition of the intestinal tract in the breast fed infant.

Cancer Mortality in Copenhagen.—The main result accruing from Heiberg's investigations is that during the twenty years in which the newest, and consequently the best, Copenhagen material was available, the number of deaths from cancer of the stomach in relation to the population in the age class 55-64 years proved to be exactly the same from year to year.

Immunity Against Diphtheria.—Glenny believes that men and horses, and possibly other animals, are repeatedly infected to a slight extent with diphtheria, and that these small transient infections result in the absorption of minute doses of toxin. Therefore, if natural immunity in man and in animals is caused by repeated stimulation with small doses of toxin produced by small transient infections, then in any chosen group of children subject to the same general conditions, the number who are already Schick negative must be an index of the number and extent of infection and stimulation.

Endemic Goiter in New Zealand.—The hypothesis that goiter is caused by a deficiency of iodine in the diet apparently is sustained by the investigation made by Hercus, Benson and Carter. These investigations are based on the examination of more than 80,000 children and 135,000 recruits. The amount of iodine has been determined in nearly 500 samples of soil obtained from all parts of New Zealand, together with samples of a number of waters from mineral springs and town supplies. Approximately, the incidence of the disease is inversely proportional to the amount of iodine in the soil. Further, where, though the incidence of goiter is low, the amount of iodine in the soil is abnormally low, it is present in the water supply in greater amounts than usual, and the daily intake of iodine among the inhabitants of such a district is thereby maintained. Regions in which the average amount of soil iodine is low are also those in which goiter is most frequently seen among the domestic animals. A study has been made of the prophylactic treatment of school children in New Zealand by administering small amounts of iodine weekly. This has had fairly good results.

Archives des Maladies de l'App. Digestif, Paris

15: 871-990 (Nov.) 1925

*Pancreas Function Test. M. Labbé et al.—p. 871.
Congenital and Acute Periduodenitis. P. Duval and J. C. Roux.—p. 886.
Periduodenitis and Appendicitis. A. Basset.—p. 893.
Insufficiency of the Gallbladder. M. Chiray and M. I. Pavel.—p. 921.
Diverticulum of Lesser Curvature of the Stomach. C. Billaud.—p. 937.
*Bismuth Treatment of Gastric Ulcer. F. Moutier and P. Porcher.—p. 944.
*Vaccination Treatment of Infected Ulcer. Roux and Girault.—p. 949.

Modified Katsch Method for Pancreas Function Test.—Katsch injects ether immediately after the duodenal tube is introduced. Labbé, Nepveux and Adlersberg point out that with this method the pancreatic juice may be mixed with bile, since ether not only stimulates the pancreatic secretion but induces contraction of the gallbladder. They empty the gallbladder beforehand, with one, two or three injections of magnesium sulphate, before they introduce the ether. About 4 cc. of ether is injected slowly, and then the pancreatic juice, accumulating in the duodenum, is aspirated after an interval of from five to twenty minutes. The pancreatic juice thus obtained is completely free from bile. The findings are recorded from eighteen cases. The test showed no changes of the pancreatic function in mild digestive disturbances. The pancreatic secretion appeared decreased in three of seven cases of diabetes; the fermentation property reduced in five. The amount of the pancreatic juice was always notably decreased in lithiasis and with destructive lesions. The test revealed even slight insufficiency of the pancreas in diabetes, and certain functional or reflex disturbances which escaped detection by other methods of examination.

Gastric Ulcer with Diverticulum; Recovery Under Bismuth.—Moutier and Porcher report a case of ulcer of the lesser curvature, with a large diverticulum, in a man, aged 52. A dose of 10 Gm. of bismuth was given, three times a day, with milk and starchy food. Alkalines were allowed only to relieve pain. In two months the pains subsided completely; a month later (under 20 Gm. daily) there were no signs of the diverticulum on roentgen ray examination. The bismuth was continued (10 Gm. a day) for two months longer, and the patient was apparently cured. He is an electrician and bed rest had been imposed for only one day.

Vaccine in Treatment of Septic Ulcer.—Roux and Girault emphasize that infection frequently complicates a gastric ulcer, and may induce recurrence of the pains. They describe two cases of ulcer in which vaccination treatment was applied to combat the infection. In one the patient still had recurring hemorrhages after a gastro-enterostomy. Intradermal tests showed a positive reaction to the enterococcus. He was given two ampules of enterococcus bouillon vaccine by mouth, every second day; the vaccine was also injected subcutaneously. In a month the intradermal reaction became negative, and recovery seemed complete. No hemorrhages have occurred during the year since, although the man is actively at work. In another case the intradermal test was positive for the streptococcus. A specific vaccine was given as in the first case, twice a day, two hours before meals; simultaneously 0.5 cc. or 1 cc. of an emulsion containing a thousand millions of bacilli was injected. The pain and paroxysms entirely subsided in ten weeks. The patient is still under observation.

Archives des Maladies du Cœur, etc., Paris

18: 689-752 (Nov.) 1925

*Intracardiac Pressure and the Heart Rhythm. L. Bard.—p. 689.
Infarction of the Myocardium; Two Cases. F. A. Willius.—p. 712.
The Nerves in Ectopic Heart Contractions. Danielopolu and Proca.—p. 719.

The Intracardiac Pressure.—Bard discusses the share of the intracardiac pressure in the mechanism of the rhythm. He analyzes in particular the influence on paroxysmal tachycardia of the reflexes originating from changes in the tension.

Bulletin de l'Académie Royale de Médecine, Brussels

5: 487-535 (Sept. 26) 1925

*Mechanism of the Heart Rhythm. Henrijean.—p. 511.
Fate of Free Bone Autografts. J. Delchef.—p. 531.

The Causes of the Heart Rhythm.—Henrijean's years of experimental research and the inadequacy of the theories accepted at present in explanation of the regularity of the heart beat have convinced him that electric currents, formed in the heart, are what excites the heart muscle, thus generating the impulse and the contraction. Just as the sense organs respond only to waves of a certain length, the muscles respond to electric stimuli only when they are of a definite kind and frequency. The electrocardiogram of a heart that has stopped beating is practically as regular as with the heart beating normally. The rhythmicity is thus a property of the pacemaker, not of the muscle. The smallest fragment of auricle tissue still connected with the Keith-Flack node keeps up its rhythmic beat. When cut away from the node, the contractions keep up, but they lose their rhythmic regularity. He compares the heart to a set of electric condensers. The electric phenomena originate in the nodes and the Purkinje fibers. They are the result of special physicochemical processes, involving electrolytes, capillarity and surface tension. The discharge from the Keith-Flack "electric condenser" occurs with constant regularity, but the discharge from the Tawara "condenser" may be more or less variable; only the P wave keeps regular. The stimulus for the heart forms at all points of the *apparat de commande* but the nodes form and store up the reserves of energy, and they influence each other. The nodes seem to differ in their sensitiveness to calcium and potassium. The P wave disappears first; this leaves the Tawara as the last point to die in the dying heart. The next question is whether some substance in the nodes or some special force is responsible for their action.

Comptes Rendus de la Société de Biologie, Paris

93: 1337-1400 (Dec. 4) 1925. Partial Index

Amino-Acids in Effusions. M. Loeper et al.—p. 1348.
Sulphur in Effusions. M. Loeper et al.—p. 1350.
*Pulmonary Spirochetosis. P. Ribierre and Kermorgant.—p. 1351.
*Action of Organ Extracts on Infusoria. A. Lwoff.—p. 1352.
*Affinity of Radium for Cancer. A. Lacassagne and R. Ferroux.—p. 1356.
Action of Hydroxylamine on the Blood Pigment. J. Roche.—p. 1377.
*The Bacteriophage. H. Stassano and A. C. de Beaufort.—p. 1380.
Action of Heating on Bacilli. H. Stassano.—p. 1385.
*Ultraviolet Rays and Tissue Cultures. S. Kiær.—p. 1389.

Spirochete Isolated from the Sputum.—Ribierre and Kermorgant found among other germs a species of spirochete in the sputum of a man with repeated hemoptysis and hydropneumothorax, but no tubercle bacilli. The spirochete did not correspond to any of the known species. Cultures of this spirochete injected in rabbits induced pulmonary lesions resembling those in the patient. Under arsenical treatment, the bloody expectoration disappeared and the general condition improved. This coincided with the vanishing of the spirochete from the sputum. Presence of a specific agglutinin and precipitin in the patient's serum confirmed the part of the spirochete in the disease.

Influence of Organ Extracts on Infusoria.—Lwoff added a drop of infusoria culture to peptone mediums containing extracts of different glands and tissues. The growth of the infusoria was promoted. The results were the same with fresh extracts as with heated extracts in which the hormones had been destroyed.

No Special Affinity of Radium for Cancer Tissue.—Lacassagne and Ferroux repeated injections of radium emanation in rats with an induced fibrosarcoma. Radioactive elements were refound in the kidney and liver; considerably less in the tumor tissue.

Action of Sodium Citrate and of Ether on the Bacteriophage.—Stassano and de Beaufort mixed cultures of Shiga bacillus with the specific bacteriophage and sodium citrate. There was evidence that the drug, while not affecting the Shiga bacillus, exerted an inhibiting action on the lysis. With Shiga bacilli treated with ether for half an hour before exposure to the bacteriophage, the lytic action of the latter became enhanced. With prolonged treatment of the bacilli with ether (over three hours), the bacilli were dead and the bacteriophage could not act on them. These tests, they say, confirm that the lytic agent does not respond to ether like a living organism.

Action of Ultraviolet Rays on Tissue Cultures.—Kiær experimented on cultures of connective tissue. The growth

of the cells appeared impaired under exposure to ultraviolet rays for eight or ten minutes. The cells were killed under a tenfold or fifteen-fold dose. He found further that the ultraviolet rays may stimulate the rhythmic contractions of a pulsating scrap of myocardium tissue.

Paris Médical

59: 1-36 (Jan. 2) 1926

Tuberculosis in 1926. P. Lereboullet and M. Lelong.—p. 1.
Significance of Koch's Phenomenon. Bezançon and Philibert.—p. 11.
*Treatment of Tuberculous Parturients. E. Sergent.—p. 17.
Variations of the Tubercle Bacillus. F. Arloing et al.—p. 22.
*Traumatic Pleurisy. L. Bernard et al.—p. 29.
*Tuberculosis in School Children. R. Debré and F. Cordey.—p. 31.

Treatment of Pulmonary Tuberculosis After Childbirth.—Sergent's method is based on Bar's theory that a sudden decompression of the lungs, following the sinking of the uterus after delivery, may arouse tuberculous infection. In order to prevent this, he suggests to induce a partial bilateral pneumothorax. It should be applied from a few hours to thirty-six hours after delivery, simultaneously on both sides, or in two days. In five women with a progressing pulmonary process, this treatment gave favorable results in three; two of the women died four and seven weeks after delivery. Bilateral pneumothorax was induced also in four women with an old history of tuberculosis. One of them died from meningitis five months later; three are still in good condition up to ten and fifteen months. The pneumothorax may be later restricted to one side.

Pleurisy with Adhesions During Treatment by Induced Pneumothorax.—Bernard, Baron and Valtis' two patients with an old therapeutic pneumothorax developed an adhesive pleurisy after trauma of the thorax. In one case in which the insufflation was attempted anew, it proved impossible to induce the pneumothorax. In the other patient, who was only slightly hurt, the insufflation was renewed eight days after the accident, and he seems to be on the road to recovery. In order to avert adhesion of the pleura, insufflation should be applied soon after the trauma.

Tuberculosis in School Children.—Debré and Cordey examined 203 children, aged from 5 to 15, with chronic tuberculosis. Almost all of them had been exposed to prolonged contact with a tuberculous person at home. The localization of tuberculosis in joints and bones occurred sooner than in the lung, affecting children with a shorter span of allergy. Prolonged contact with a source of infection generates the slow, chronic type of the disease from the first.

Revue Franç. de Gynécologie et d'Obstét., Paris

20: 649-672 (Nov. 25) 1925

The Giant Cell of Elephantiasis of the Vulva. A. A. Babès.—p. 649.
Torsion of Ovarian Cyst After Childbirth. A. van Cauwenberghe.—p. 657.

20: 673-688 (Dec. 10) 1925

*Radium in Treatment of Diabetes. M. Seiichiro.—p. 673.
Gravid Uterus in Retroversion Impacted in Pelvis; Laparotomy. R. Bonneau.—p. 678.

Action of Radium on Diabetes Mellitus.—Seiichiro treated cancer of the uterine cervix with radium in a diabetic woman. He applied 50 mg. of radium bromid to the cervix for over twenty hours. After two irradiations (four days interval), the sugar had disappeared from the urine by the fourth day. After nine applications of the radium the cancer process appeared to be checked, and the patient had gained in weight. The sugar test continued to be negative, although sugar was added to the food. Under preceding insulin treatment the condition of the patient had only slightly improved. Seiichiro believes that the radium may have acted directly on the organs controlling the sugar metabolism, or the action may have been indirect, by way of the internal secretion of the ovary.

Schweizerische medizinische Wochenschrift, Basel

56: 1-24 (Jan. 9) 1926

The Blood as a Secretion. H. Sahli.—p. 1.
*Treatment of Appendicitis. G. Hotz.—p. 8.
Obstetric Examination. H. Guggisberg.—p. 11.
Repeated Micro-Embolism in Endocarditis. H. U. Gloor and M. Gilbert.—p. 17.
Medicolegal Aspects of Abortion. A. Labhardt.—p. 20.

Treatment of Appendicitis.—Hotz' statistics show the low mortality of patients operated on the first day (1.2 per cent) or the second day (2.4 per cent) or in the interval, and the high mortality (9.6 per cent) between the seventh to the tenth days. Only seventy-two patients were treated in the last five years by internal measures alone—partly because the disease was light, partly because of complications and weakness of the patients. Only two of these (2.7 per cent) died. In spite of this, he pleads for early operation.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

33: 581-644 (Nov.) 1925

The Biologic Applications of the p_H Symbol. H. Delaunay.—p. 581.
The Public Health Service in Argentina. Araoz Alfaro.—p. 608.
Recent Progress in Tropical Medicine and Hygiene. P. Mühlens.—p. 617.
*Improved Tuberculin Skin Test. A. Ferrari.—p. 627.

Improved Tuberculin Skin Test.—Ferrari extols the ease and simplicity of what he calls his new dermoreaction for detection of tuberculosis. He pricks the skin in the same way as for tattooing. A few droplets of blood ooze out as the skin is stretched. At another point he deposits a drop of tuberculin, and repeats the pricks through it. Two minutes later he wipes off the tuberculin, and tells the patient to return in five days. The positive reaction is striking; the reddish spot may be visible for several days. When it subsides, it leaves an area of pigmentation that may linger for several weeks.

Revista de la Soc. Arg. de Biología, Buenos Aires

1: 335-496 (Sept.) 1925

*Chagas' Disease. R. L. Dios et al.—p. 335.
Gage for Potency of Antitoxin. Pico and Ferrari.—p. 341.
Action of Insulin on p_H of Rabbit Blood. R. Wernicke et al.—p. 351.
*The Botelho Reaction. G. Fichera.—p. 356.
Action of Insulin on Grafted Cancers. N. Piccaluga and S. Gioffari.—p. 359.
Mechanism of Action of Snake Venom on Striped Muscle. B. A. Houssay and P. Mazzocco.—p. 370.
Primary Cancer of Common Bile Duct. D. Mosto.—p. 389.
Malformations and Blastomas. J. Llambias and J. M. Jorge.—p. 396.
Discharge of Epinephrine Induced by Asphyxia, etc. B. A. Houssay and E. A. Molinelli.—p. 402; 426; 441.

Chagas' Disease in Argentina.—Dios and his co-workers report the third case of American trypanosomiasis discovered to date in Argentina, all in boys.

The Botelho Reaction.—Fichera states that in tests of 350 serums the reaction was positive in 80 per cent of the cancer patients and in 25 per cent of the nonmalignant cases. Tests on rabbits and guinea-pigs, and in 182 patients, with comparison of the refraction and viscosity findings, confirmed his assumption that the reaction is merely the result of an excess of serum globulins, an upset in the balance between the plasma and the proteins. The reaction therefore merely indicates resorption of the products of cell disintegration.

Revista de la Soc. Arg. de Urol., Buenos Aires

1: 139-164 (Oct.) 1925

*Enuresis in Children. A. Serantes and L. A. Montes.—p. 139.
Actinomycosis or Tuberculosis of the Penis. L. E. Pagliere.—p. 143.
Calculus in Pelvic Ureter Removed by Judd's Extraperitoneal Incision. E. Castaño.—p. 151.
Function Tests for Polycystic Kidney. A. Martin Lopez.—p. 157.
*Inclusion of Penis in Cicatricial Tissue. J. Salleras.—p. 160.

Essential Incontinence of Urine.—The boy of 15 had never been able to control the evacuation of the bladder except by frequent micturition, and at night the enuresis was complete. No treatment had proved effectual until a perineal injection of 30 c.c. of physiologic saline solution, repeated the following week on the other side, cured the enuresis at one stroke. The patient has been normally continent since the first injection. Marion's technic was followed; the injections were quite painful. Salleras has reported a case of complete recovery after a single perineal injection of 20 cc. of the solution in a man of 25 with nocturnal enuresis from childhood. In Ortiz' two cases, no effect was apparent.

Inclusion of Penis in Cicatricial Tissue.—The man of 32 had been having a venereal granuloma with multiple suppurating foci for three years before it was arrested with antimony and potassium tartrate. As it healed, the cicatricial tissue completely covered the penis; the urine was voided through

an opening in the pubis, and there were fistulas in the perineum. Salleras describes with illustrations the plastic operation which released the penis and provided a meatus in the penoscrotal angle.

Semana Médica, Buenos Aires

2: 1273-1340 (Nov. 19) 1925

Endothelioma of the Ethmoidal Sinus. J. Layera.—p. 1273.
Present Status of Sanocrysin. R. A. Vaccarezza.—p. 1275.
Vaccines in Ophthalmology. J. Lijo Pavia.—p. 1292.
*Mikulicz' Syndrome with Sarcoma. J. G. Fernández et al.—p. 1299.
Estimation of Thyroid Activity. P. Heredia.—p. 1307.
Insulin in Toxicosis in Infants. E. Foster.—p. 1315.
Social Diseases. L. Bard.—p. 1316.
The Pain in Rheumatism. S. Libarona Brian.—p. 1322.
Hematology of Amebic Hepatitis. J. J. Viton.—p. 1337.

The Mikulicz Syndrome in a Child with Sarcoma and Leukemia.—The disease ran a rapid, malignant course, involving the lacrimal and salivary glands and the thymus, invading the mediastinum in the form of a large lymphosarcoma. The blood showed intense leukemia, and the boy, aged 6½, died two months after the first appreciable symptoms. The true Mikulicz disease is a slow, torpid process, generally affecting persons in the twenties.

Medizinische Klinik, Berlin

22: 1-42 (Jan. 2) 1926

Constitutional Asthma. R. Schmidt.—p. 1. C'td.
Pyelitis. L. Casper.—p. 4.
*Gastric Ulcer. C. Hirsch.—p. 6.
Treatment of Syphilis. Jesionek and Others.—p. 8. C'td.
*Heart with Hard Shell. H. Schlesinger.—p. 11.
*Congenital Syphilis. R. Fischl.—p. 15.
Roentgenography of the Gallbladder. W. Baetzner.—p. 18.
*Treatment of Itching. J. K. Mayr.—p. 19.
*Septic Infections. E. Singer.—p. 20.
Inability to do Professional Work. H. Engel.—p. 24.
Physical Therapy. A. Laqueur.—p. 27.
Four Pathologists of the Prague German University. R. Fischl.—p. 39.

Gastric Ulcer.—Hirsch admits a nervous influence on the chronicity of gastric ulcers. The primary erosion has different causes; for instance, it is frequent in the rennet stomach of calves who get coarse fodder before the other portions of the stomach are well developed.

"Heart en Cuirasse."—Schlesinger reports a case of incrustation with lime of almost the whole pericardium. Such patients are usually free from symptoms for a long time, and are capable of even extraordinary efforts. He believes that the lime "armor" protects the heart to a certain extent.

Congenital Syphilis.—Fischl warns against overestimating the reliability of the Wassermann reaction. He has seen a positive reaction in well developed infants who do not show any symptoms for months, and whose parents are negative. On the other hand, he observed infection of a wetnurse by an apparently healthy and Wassermann negative child of an apparently healthy and Wassermann negative mother. Therefore he repeats the test three times before giving the child to a wetnurse or vice versa. Spirochetes may be found frequently —best by the dark field illumination—in the conjunctiva and in pustules. Yet he warns against provocation of cantharidin blisters, as they may turn into syphilitic ulcers.

Treatment of Itching.—Mayr had observed with Moncorps that injections of a spleen extract inhibit eosinophilia in animals. He reports some favorable results in itching affections connected with eosinophilia.

Septic Infections.—Singer investigated the phenomena of infection with anthrax bacilli after blocking either the reticulo-endothelial cells by intravenous injection, or the histiocytes of the connective tissue by subcutaneous injections of aggressins. He concludes that the former play a more important rôle in prevention of infection. The loss of chromaffinity of the suprarenals was striking, but this indicates in his opinion only a secondary action of that system.

Monatsschrift für Kinderheilkunde, Leipzig

31: 193-490 (Jan.) 1926. The Pediatric Congress

*Orthopedics and Pediatrics. H. Spitzy.—p. 193.
*Hemoglobin Resistance in Infants. Bischoff.—p. 228.
Clinical Anaphylaxis. A. Uffenheimer.—p. 232.
Endocrine Relations Between Mother and Fetus. R. Neurath.—p. 240.
Gas and Iodine Metabolism in Puberty Goiter. Eckstein.—p. 242.
*Phosphate Metabolism. F. Demuth.—p. 252.
Fever Metabolism. O. Beck.—p. 258.
*Decomposition of Fat in Starvation. A. Frank.—p. 265.
*Immunization Against Measles with "Cultures." S. Meyer.—p. 270.
Prevention of Measles. E. Nobel.—p. 275.
Roentgen Injury of Fetus. E. Deutsch.—p. 284.
Leukocyte Picture and Infection. E. Stettner.—p. 287.
Treatment of Meningitis. A. Reiche.—p. 295.
Action of Digitalis. B. Samet and O. Tezner.—p. 300.
*The Water Metabolism. O. Koref and H. Mautner.—p. 303.
Blood Transfusion in Children. Opitz.—p. 306.
Blood Transfusion. P. Morawitz.—p. 320.
Surgery and Intubation in Croup. J. von Bókay.—p. 333.
*The Characteristic Features of Puberty. A. Biedl.—p. 347.
Ossification of the Skull in the New-Born. H. Abels.—p. 366.
*Changes in Susceptibility to Tuberculin. K. Ossoinig.—p. 371.
*Fluctuations in the Predisposition. F. Hamburger.—p. 376.
*Metabolism in Pylorospasm. H. Vollmer.—p. 380.
Surgical Indications in Stenosis of the Pylorus. J. Bauer.—p. 384.
Occult Hydrocephalus. H. Koeppe.—p. 390.
*Food and Intestinal Secretion. Rosenbaum.—p. 396.
*Cholera Infantum. A. Bratusch Marrain.—p. 399.
Colon Bacillus Dyspepsia. K. Weise.—p. 404.
Biochemistry of Casein. H. Meyer.—p. 410.
Serotherapy of Bronchopneumonia. R. Kochmann.—p. 413.
*Histology of the Pancreas. W. Dreifuss.—p. 415.
Pediatrics in Study of Heredity. S. Weiss.—p. 418.
Dispensary for Children with Congenital Syphilis. I. Hescheles.—p. 424.
Insulin Treatment of Diabetes in Children. Priesel and Wagner.—p. 428.
Hypervitaminosis. K. Scheer.—p. 430.
Rickets in Rats. E. Maurer.—p. 437.
Entropium in the New-Born. A. Elschnig.—p. 439.
Urines Containing Bacteria. E. Freudenberg.—p. 441.
Pyuria of Infants. F. Strunz.—p. 443.
The Individualism of Pathogenic Bacteria. K. Hofmeier.—p. 446.
Intestinal Bacteria. Stransky and Trias.—p. 451. Idem. Trias.—p. 457.
Health Certificate for School Children. Flachs.—p. 460.
Congenital Syphilis and Irritation. R. Fischl.—p. 463.
*Anemia in Congenital Syphilis. M. Frank.—p. 470.
*The Incubation of Tuberculosis. B. Epstein.—p. 475.
The Intermediate Water Metabolism in Infants. W. Stern.—p. 484.
The Chlorides of Tissue Fluid in Infants. E. Slawik.—p. 486.

Orthopedics and Pediatrics.—Spitzy deals with the various indications for orthopedic treatment. Every surgical intervention must aim to obtain a simpler mechanism which the remaining muscles are able to manage. The art of the surgeon consists in the correct estimate as to how much simplification is needed. The after-treatment is more important than the intervention. The previous mistake of devoting the attention exclusively to the diseased region has been replaced by an overestimation of phototherapy. The local treatment and the proper food must not be overlooked. The children have to be carried into a shaded place before meals, otherwise they lose their appetite.

Hemoglobin Resistance in Infants.—Bischoff recorded monthly the decrease of hemoglobin resistance in eighty-three infants. It is sufficiently constant to serve as a gage to determine within one month the age of an infant or the term at which a premature infant was born, if its age is known. He mixes 5 cc. of a 1 per cent aqueous solution of blood of a 100 per cent hemoglobin content (Sahli) with 1 cc. of a one-fourth normal sodium hydroxid solution, and records with the spectroscope the time of disappearance of the oxyhemoglobin. It averages 154 minutes in the umbilical blood and in the first month; 109 minutes in the second; 66 in the third; 23 in the fourth; 4.5 in the fifth; nearly 3 minutes in the sixth; 92 seconds in the seventh, and 74 seconds in the eighth month. It is higher with anacidity and especially with pernicious anemia.

Phosphate Metabolism.—Demuth found a phosphatase in all the organs and fluids examined with the exception of the gastric juice. The optimum of its action varies according to the source—probably because of admixtures. Only the muscle phosphatase has its optimum in the zone of the reaction of tissues. Rachitic cartilage displays a stronger splitting property than the healthy control, and has a second optimum of hydrogen ion concentration. Normal cerebrospinal fluid decomposes only slightly sodium hexosediphosphate. The splitting is strong with meningitic fluids.

Decomposition of Fat in Starvation.—Frank compared the fat from rats that had been starved to death after being fed with a diet either rich in carbohydrates or in fat or on a mixed diet. Contrary to expectation, the iodine number was

lower in the rat which had been fed with butter. This indicates that the decomposition even of fat containing palmitic and stearic acid goes by way of the unsaturated fat acids, and is not restricted exclusively to beta oxidation.

Caronia's "Cultures" and Immunization Against Measles.—Meyer injected thirteen children partly with Caronia's original alleged measles vaccine, partly with her own vaccine, prepared in the same way. These children were exposed to measles for two to fifteen days after the third preventive inoculation. All of them contracted the disease. The symptoms were typical, and by no means less severe than in other children. With regard to Caronia's claim of production of measles by the cultures, she asked Sindoni to inoculate two children with the original cultures, and did the same with her own cultures. No symptoms appeared, but three of these four children contracted measles later spontaneously.

Pituitary, Insulin and the Water Metabolism.—Koref and Mautner found that a preliminary injection of insulin inhibits completely the antidiuretic action of pituitary extracts. The diuresis sets in at the time of the hypoglycemia. The pituitary extract enhances the secretion into the gastro-intestinal tract and increases its tonus. Insulin inhibits the secretion and accelerates the resorption from the intestinal tract.

Characterization of Puberty.—Biedl regards puberty from the viewpoint of the prevalence of the different endocrine glands at various ages. The interrenal system and the gonads are predominant in the new-born. The thyroid and parathyroids have little influence. The low function of the latter is evident from the spasmophilic tendency of infants; the hypofunction of the thyroid from the low metabolism in the first three months. The relative height of the metabolism of adults is attained in the sixth month, when a further increase sets in which reaches its maximum (40-50 per cent above the relative oxygen intake of adults) in the beginning of the second year. The thyroid keeps the lead throughout the second year. These changes are in inverse proportion to the relative gain in weight. The pineal gland and the anterior lobe of the pituitary begin to assert themselves—the latter especially in the first stretching of the growth in length. The succeeding relative stability of the endocrine system is interrupted by the first phase of puberty—pubescence. The sudden increase in oxygen metabolism, the second extension in length, and the frequent goiter indicate new demands on the thyroid. The growth is partly conditioned by the anterior pituitary, and both glands promote the development of the gonads. The latter gradually check the growth. In eunuchs, this is the only stage of puberty, and the growth in length is excessive. The nervous system changes: at first the vegetative system predominates, while the volitional apparatus gets lazy. A large variety of symptoms indicating a changed tonus of the sympathetic and parasympathetic arises; the most constant herald of approaching puberty is a marked respiratory arrhythmia and changes of the hair of the scalp. Erotic, although not yet sexual, tendencies appear. The involution of the thymus occurs here. Adolescence (the second phase of puberty) indicates the fight of the gonads for the predominant position. The dominance of the thyroid over the metabolism yields to the epinephrine system, insular apparatus and the intermediary lobe of the pituitary. The metabolism center in the interbrain, which had been long checked by the peripheral action of the thyroid secretion, dominates temporarily—a revolution from the hormonic to the nervous regulation. The definite distribution of hair and other secondary sex characters appear. With the decision of the fight in favor of the gonads, the third phase of puberty—maturity—is accomplished. In puberty disturbances, the delayed occurrence, with otherwise normal development, gives the best therapeutic opportunities. Thyroid extracts and eventually the anterior lobe of the pituitary start the process.

Changes in Susceptibility to Tuberculin.—Ossoinig observed at different times a peculiar increase and decrease of the tuberculin reaction occurring in the majority of the patients tested. He thinks of climatic influences, although he was unable to find any definite indications of them.

Variations in the Predisposition.—Hamburger reports on the observations made by Haidvogl in diphtheria. The results of the Schick test may be quite opposite at different times. The antitoxin content of the serum varies considerably. He also mentions Ritte's experiments which showed that children may tolerate without symptoms at times twice the amount of atropine to which they react distinctly at other times.

Metabolism in Pylorospasm.—Vollmer and Serebrijski found no sign of general spasmophilia in the pylorospasm of infants in spite of the alkalosis caused by loss of hydrochloric acid. The ammonia excretion was extremely small, the urine alkaline (p_H always above 7.4), and only traces of chlorides were present. The alkali reserve of the blood was high—sometimes over 100. The blood chlorides and residual nitrogen were always low. They conclude that this condition shows the existence of a decompensated alkalosis without tetany. The explanation for this paradox may be in the possibility that the lowered concentration of blood chlorides and nitrogen counteracts the lowering of the concentration of the calcium ions, which would otherwise occur with the increase of blood bicarbonate, according to the Rona-Takahashi formula.

Food and Intestinal Secretion.—Rosenbaum introduced various food mixtures into the duodenum of dogs. Within twenty minutes, the contents had a p_H of 7.3-7.6, no matter whether the food consisted of proteins, fat, or carbohydrates, or whether it was neutral, or acid. Much more secretion is naturally necessary to neutralize the acid mixture. He concludes that the acidity of the contents is the stimulus for secretion.

Cholera Infantum.—Bratusch-Marrain confirms, although not fully, the good results of Monrad's treatment of acute alimentary intoxication in infants. It consists of starvation for two to seven days after administration of 5-10 Gm. of castor oil and a water diet, with daily subcutaneous injections of physiologic solution of sodium chloride.

Histology of the Pancreas in Nutritional Disturbances.—Dreifuss found an elective infiltration of Langerhans' islands with lipoids in grave alimentary toxicosis of infants. A fatty degeneration of the exocrine (external secretion) part of the pancreas is rare, and does not occur in nurslings.

Anemia in Congenital Syphilis.—Frank found anemia practically only in those congenitally syphilitic infants who had visceral changes. The antisyphilitic treatment influenced the grave anemia cases about as little as it improved the visceral symptoms. In some lethal cases a lymphocytosis up to 90 per cent (with 30,000 white cells per cubic millimeter) occurred. Monocytosis was noted even in the milder cases.

The Incubation of Tuberculosis.—Epstein found the incubation period in tuberculosis in infants almost constant: three to seven weeks, when determined by the intracutaneous test; four to ten weeks with the cutaneous test. Age, localization or source of infection made no difference.

Münchener medizinische Wochenschrift, Munich

73: 1-46 (Jan. 1) 1926

Collapse, Shock and the Vegetative System. H. Coenen.—p. 1. C'td.
*Cellular Reticulum and Reticulo-Endothelial System. W. v. Möllendorff.—p. 3.
Treatment of Underweight Persons. E. Vogt.—p. 7.
Vegetative Regulation of Skin and Liver. E. F. Müller.—p. 9. C'td.
*Uricoxydase of the Blood. Flatow.—p. 12.
Lymphocyte and Monocyte Reaction. P. Wichels and W. Barner.—p. 14.
*Reaction of Vaginal Secretion in Gonorrhea. K. Volkmann.—p. 15.
Aphasia After Apoplexy. W. Eliasberg.—p. 16.
*Iodine in the Body. E. Maurer and S. Diez.—p. 17.
My Gastroscope. R. Korbsch.—p. 20.
Roentgen Study of Lungs After Surgery. A. Brunner.—p. 21.
Mechanization of Practice of Medicine. H. Braun.—p. 27.

Cellular Reticulum and Reticulo-Endothelial System.—Möllendorff studied the cells of the loose connective tissue of white mice after injections of trypan blue. He traces a line of development from the network of fibrocytes to so-called macrophages, and believes that the latter develop a marked activity only while being still in connection with the other cells.

Uricoxydase of Blood.—Flatow has continued his research on the uric acid of the blood. He found a rapid decrease on standing which can be explained best by the presence of an

oxidative ferment. It acts in the same way on added uric acid. He concludes that about 90 per cent of it has escaped attention hitherto when the whole blood was used. There is less oxidase in the serum, and therefore the error with serum is smaller.

Reaction of Vaginal Secretion in Gonorrhea.—Volkmann warns against relying on Danin's test (described in these columns, July 4, 1925, p. 77) for the diagnosis. Repeated microscopic findings are more reliable.

Iodine in the Body.—Maurer and Diez found a regular increase in the iodine content of the blood on the first day of menstruation (average 0.0193 mg. per hundred cubic centimeters, against 0.0092 in the interval).

Wiener klinische Wochenschrift, Vienna

39: 1-40 (Jan. 1) 1926

Glands of the Skin. J. Schaffer.—p. 1.
Syphilis of Blood Vessels. C. Sternberg.—p. 5.
*Pathogenesis of Gastric Ulcer. R. Bálint.—p. 7.
Pregl's Kidney Function Test. H. Haberer.—p. 10.
Anomalies in Connection Between Skull and Neck in Children. F. Kermauner.—p. 12.
Thick Cereal with Fat in Infant Feeding. W. Knoepfelmacher.—p. 13.
*Therapeutic Action of the Pituitary. W. Lampe.—p. 15.
Development of Otology. H. Neumann.—p. 16.
*Grave Mediastinal Processes. W. Neumann.—p. 18.
Atony. J. Pál.—p. 19.
Migraine and Epilepsy. E. Redlich.—p. 21.
Figures Formed by Electric Discharge. P. Schneider.—p. 25.
*Complications After Operations. J. Schnitzler.—p. 26.
*Shock Treatment of Diabetes. G. Singer.—p. 28.
Rupture of Uterus: Spontaneous or from Violence? Haberda.—p. 32.
Influenza and Encephalitis. A. Luger. Supplement.—pp. 1-19.

Pathogenesis of Gastric Ulcer.—Bálint explains the action of the Sippy treatment by an alkalization of the whole body—not of the gastric contents. Its analgesic action was manifest even with subacidity or after intravenous injection of alkali. Richet and Fossey found a favorable influence from sodium bicarbonate even when it was introduced by the rectum. Szirmay observed an alkaline shifting of the acid-base balance of the organism after injections of foreign proteins, and Patay after atropine. Bálint found in 40 per cent of twenty-two ulcer patients an abnormally high hydrogen ion concentration in the blood serum, and a high normal only in 11 per cent. On injecting a rabbit daily with 4 cc. of an acid mixture of sodium phosphate and hydrochloric acid, he observed scarcely any tendency to healing of a wound. He had good results with the alkaline treatment of leg ulcers. He believes that an abnormally acid reaction of the tissues accounts for the chronic character of these and peptic ulcers, and that alkalization of the body—not merely of the gastric contents—is the therapeutic factor.

Activity of Posterior Lobe of the Human Pituitary.—Lampe confirms all the properties of pituitary extracts in preparations obtained from the posterior lobe of the human pituitary.

Grave Mediastinal Processes.—Neumann has observed another case of acute dilatation of the stomach and a case of ileus—both due to destruction of the vagus by sarcoma or tuberculous scar tissue. There was also a dilatation of the gallbladder in the latter case.

The Constitution and Complications After Operations.—Schnitzler observed the familial occurrence of postoperative thrombosis. This may indicate that a constitutional factor is partly responsible for it. Conditional factors—such as menstruation—may also be among the causes of postoperative embolism.

Shock Treatment of Diabetes.—Singer injects small amounts of proteins every other day and later every fourth day, increasing the dosage slightly.

39: 41-64 (Jan. 7) 1926

*Hypertension from Pituitary Extracts. A. Leimdörfer.—p. 41.
Goiter Prevention by Iodized Salt. B. Breitner.—p. 42.
Pneumococcus in Bone Marrow in Acute Leukemia. L. Burian.—p. 47.
Oxygen Pressure and Tuberculosis. A. Juergensohn.—p. 49.
Uterine Lipomas. E. Preissecker.—p. 51.
Sulphur Dioxid Treatment of Wounds. E. Morawek.—p. 52.
The First Ether Anesthesias. I. Fischer.—p. 52.
Blood Transfusion. K. Nather. Supplement.—pp. 1-16.

Hypertension After Intraspinal Injection of Pituitary Extract.—Leimdörfer injected pituitary extracts intraspinally in cats. They produced a three to four times greater rise of the blood pressure, which lasted twice to four times longer than when the same amount had been injected intravenously. He found enlargement of the sella turcica in certain hypertension patients, and suggests the possibility of a causal connection, as well as of therapeutic utilization of his observation in low blood pressure. Molitor and Pick had found a more pronounced inhibition of diuresis after intraspinal injections of pituitary extracts than after intravenous.

Zeitschrift für Kinderheilkunde, Berlin

40: 427-622 (Dec. 31) 1925

Hemorrhages in Skull and Brain of the New-Born. P. Schwartz and L. Fink.—p. 427.
*Metabolism in Puberty Goiter. A. Eckstein and E. Mommer.—p. 475.
*Iodine Resorption in the Thyroid. A. Eckstein and M. Nuelle.—p. 488.
Transitory Infiltrates of the Lungs. W. Friedenberg.—p. 493.
*Trypanocidal Action of Serum. Neumark and Pogorschelsky.—p. 535.
Meningo-Encephalic Conditions. J. Brock.—p. 552.
Dick Test in Scarlet Fever. K. Kundratitz.—p. 573.
Etiology of Erythema Nodosum. H. Koch.—p. 584.
Treatment of Diarrheic Nutritional Disturbances. Buschmann.—p. 590.
*Rickets and Avitaminosis. W. Schmitt.—p. 601.
*Normal Heart Sounds. L. D. Steinberg.—p. 620.

Gas and Iodine Metabolism in Puberty Goiter.—Eckstein and Mommer found a normal basal metabolism in adolescents with puberty goiter. Regular administration of iodine had no characteristic effect on the gas metabolism, even in cases which had been clinically well influenced. The iodine salt was rapidly eliminated by the urine. A parenchymatous goiter removed surgically from a patient who had been long treated with iodine contained comparatively large amounts of it.

Iodine Resorption by the Thyroid.—Eckstein and Nuelle produced a moderate increase in the iodine content of the thyroids in dogs by administration of iodine compounds for seven weeks.

Trypanocidal Action of Serum.—Neumark and Pogorschelsky confirm that the trypanocidal substance is present in the serum of healthy infants 11-15 weeks old. Only two congenitally syphilitic infants were positive in the second and fifth week. Infectious diseases of every kind, including "colds," lower the trypanocidal action of the serum. The same phenomenon in avitaminosis is also due only to accompanying infections.

Rickets and Avitaminosis.—Schmitt found that administration of B and C vitamins cures only those cases of rickets which have a spontaneous tendency to recovery. He concludes that rickets is not the combined avitaminosis which Reyher believes it to be. The curative influence of light was beyond any question.

Normal Heart Sounds.—Steinberg has found practically in every child the third heart sound discovered by Gibson and Einthoven, and studied especially by Obraszoff. It occurs usually in the beginning, less frequently in the middle of the diastole. It may be heard by direct auscultation in the third interspace between the sternal and midclavicular lines. It has a low pitch and is about 200 times weaker than the second sound.

Zentralblatt für Chirurgie, Leipzig

53: 1-64 (Jan. 2) 1926

*Removal of Open Safety Pin from the Esophagus. L. Drüner.—p. 1.
Torsion of the Omentum. E. Schwarz.—p. 5.
Calcified Hydatid Cyst in Liver in Cholelithiasis. L. P. Mariantschik.—p. 9.
*Topical Diagnosis of Peptic Ulcer. A. Frenkel.—p. 13.
*Prevention of Postoperative Pneumonia. F. Lindauer.—p. 16.
Removal of Fumes of Anesthetics. A. Henle.—p. 17.

Removal of Open Safety Pin from the Esophagus.—Drüner's patient had swallowed an open safety pin which had lodged in the esophagus on a level with the first rib, the point of the pin upward. The pin was extracted easily by way of the stomach after a laparotomy, under guidance of the roentgen rays.

Topical Diagnosis of Peptic Ulcer.—Frenkel believes that disappearance of the localized tenderness in the knee-elbow position indicates its site near the pylorus. Persistence of the pain is associated with other ulcers of the stomach.

Calcium Chloride Urea in Prevention of Postoperation Pneumonia.—Lindauer injected 10 cc. of 10 per cent calcium chloride urea intravenously, one hour before the laparotomy, in 100 cases, using another 100 cases for controls. Bronchitis occurred in six cases of the first series and in twenty of the latter group; pneumonia in four of the former and in six of the latter group. No deaths from pneumonia occurred in the patients treated with calcium chloride urea while three died among the controls.

Zentralblatt für Gynäkologie, Leipzig

50: 1-64 (Jan. 2) 1926

*Accident and Unfitness in Obstetric Practice. H. Selheim.—p. 1.
*Stimulation of Uterine Contractions. C. J. Gauss.—p. 13.
Value of Diagnosis from Excisions and Scrapings. R. Meyer and C. Kaufmann.—p. 20.
*Damage to Fetus from Irradiation. H. Martius and H. Franken.—p. 25.
*Histology and Prognosis of Cancer. Böhm and E. Zweifel.—p. 30.
*Lipoid Content of Ovum and Sex Determination. E. Fels.—p. 35.
Plastic Operation on Cleft Uterus. H. Fuchs.—p. 39.
Backache in Adnexitis. L. Kraul.—p. 46.
Mixture Cyanosis of the New-Born. M. Traugott.—p. 50.
Kidney and Liver in Eclampsia. E. Preissecker.—p. 52.
Eclampsia and Calcium. Günter and K. F. Schultze.—p. 57.

Accident and Unfitness in Obstetric Practice.—Sellheim deals with the borderland between obstetric accident, criminal negligence and gross incompetency of the obstetrician. He pleads for partial revoking of the license in the latter case, until the culprit can prove that he has acquired sufficient knowledge and skill. He believes that very little actual practice with profound theoretical knowledge will make a good obstetrician.

Stimulation of Uterine Contractions.—Gauss found a Zander vibration stool and locally applied vibration useful for inducing labor.

Damage to Fetus from Irradiation.—Martius and Franken irradiated mice with roentgen rays. Only one pair out of five were sterilized, but the litters from the other pairs were small and their mortality high. The surviving young mice were underdeveloped and sterile at the age of 9 months.

Histology and Prognosis of Cancer.—Böhm and Zweifel compared the microscopic findings with the results of roentgen treatment in 122 cases of cancer of the uterus. The best results were obtained in medullary carcinoma with immature cells, containing a profusely vacuolized cytoplasma, strong leukocytic infiltration of the stroma, and production of granulation tissue. The worst results from the roentgen rays were seen in highly differentiated epidermoid carcinomas displaying a tendency to keratosis, without leukocyte infiltration of the stroma. Their estimate of the outcome from the histologic findings failed in only 10 per cent.

Lipoid Content of Ovum and Sex Determination.—Fels confirms on human ovaries differences in the phosphatid content of the nucleoli of the ova. He regards them as indicators of the state of nutrition of the ova, and does not believe that the sex is predetermined according to the phosphatid content of the primordial follicles, or even later.

Zentralblatt für innere Medizin, Leipzig

47: 1-32 (Jan. 2) 1926

*Blood Pressure in Exophthalmic Goiter. A. Troell.—p. 2.
Diathermy in Neurasthenia, Sciatica and Hysteria. Kyaw.—p. 11.

Blood Pressure in Exophthalmic Goiter.—Troell found a higher systolic pressure and greater amplitude of pressure—the latter parallel with the increased metabolism—in exophthalmic goiter patients than in controls of the same age. The tachycardia, palpitations and perhaps some disturbance of the suprarenals may be the causes. The pressure returns to normal after thyroidectomy.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 2651-2762 (Dec. 12) 1925

Pneumothorax Treatment in Tuberculosis. M. M. Hijmans.—p. 2652.
*Psychoses and the Heart. J. L. van Lier.—p. 2661.
Congenital Epidermolysis with Cyst Formation. N. I. Heijbroek and W. L. L. Carol.—p. 2668.
*The Erect Position. R. J. Harrenstein.—p. 2676.
The Scarlet Fever Question. H. Aldershoff.—p. 2694.

Mental Disease and the Heart.—Van Lier says that in the last 265 necropsies at the public hospital for mental disease, thirty of the cadavers had macroscopic heart lesions. In his clinical experience, when a person predisposed to mental disturbances acquires heart disease, the character changes in the line of irritability, readiness to anger, and an anxiety neurosis. If the mental disease develops with an already established heart defect, the character of the psychosis is influenced by the disturbance in the brain from the heart lesion. Treatment of the latter may aid in the cure of the psychosis, and such should never be neglected. Even when the heart disease is not clinically manifest without the equipment of a modern hospital, treatment of the psychoses of the above mentioned type should include tentative treatment of the heart. By restoring compensation, the anxiety neurosis, etc., may be favorably influenced, as he shows by a few concrete examples.

The Inferiority of Our Organism for Which the Erect Position Is Responsible.—Harrenstein discusses the relation of certain pathologic conditions to the acquired erect position. Before the child learns to walk, its falls and bumps may be responsible for the localization of osteomyelitis or tuberculosis later in life. Gravity is defied in the erect position, and it gets its revenge in the weakly and the rachitic. Not only hernia but visceroptosis and varices are among the penalties we pay not only for the erect position but for the unhygienic conditions of modern life which compel continuous standing, walking, etc., without due intermissions of repose. Among the measures he suggests to combat the consequences of the erect position is the avoidance of unnecessary fat. This reduces the weight we have to carry around and move up and down at each breath. The strengthening of the muscles by exercise aids in reducing the damage from the erect position, warding off pathologic conditions in the internal organs, invited by the erect position.

Ugeskrift for Læger, Copenhagen

87: 1125-1182 (Dec. 17) 1925

Enlarged Mesenteric Glands. A. Sennels.—p. 1125.
Myxedema After Too Vigorous Roentgen-Ray Treatment of Exophthalmic Goiter. C. Gram.—p. 1128.
Change of Character After Traumatism; Recovery After Operation. G. Clausen.—p. 1130.
Orbital Lesion of Dental Origin. O. Bjerrum.—p. 1131.
Portable Formaldehyd Sterilizer for Catheters. Tvedegaard.—p. 1133.
Aspiration Treatment of Chronic Tonsillitis. H. Heidemann.—p. 1133.
The Question of a Public Infirmary for Nervous Affections. H. I. Schou.—p. 1138.

87: 1183-1192 (Dec. 24) 1925

*Light and Vitamin A. C. E. Bloch.—p. 1183.
Prolapse of Umbilical Cord at Five Successive Pregnancies. N. A. Nielsen.—p. 1186.

Light and Vitamin A.—Bloch reports an instance of xerophthalmia in a boy of 9 and his sister, aged 8. That lack of vitamin A was the causal factor was evident in the subsidence of the xerosis when vitamin A was supplied; it had to be injected intramuscularly in the boy, as it did not seem to be absorbed from the digestive tract. The boy grew robust during the summer at a seashore sanatorium, but developed xerosis toward the close, during recurring attacks of diarrhea, and the girl's xerosis returned likewise in the autumn during an acute infectious sore throat. In both cases the supply of vitamin A being thus temporarily reduced, allowed the return of the xerosis. Exposure to the carbon arc Finsen light for a total of thirty-two and twenty hours in the course of three to six weeks failed to modify the xerosis, just as the sunlight at the seashore had failed to prevent its development. Neither sunlight nor outdoor life had been able to substitute for the deficiency in vitamin A or to supply it to the organism. These and Bloch's other clinical and experimental experiences sustain his assumption that the radiant energy from the ultraviolet rays is necessary to stimulate certain functions; it is indispensable when these functions are depressed from any cause. The ultraviolet ray energy is taken up by the organism either by direct irradiation or by food charged with this energy, such as cod liver oil, yolk of egg, and milk, to a certain extent. He refers to experiments which seemed to show that this energy passes into the milk of cows exposed to ultraviolet rays, although the cows otherwise showed no signs of influence from it.